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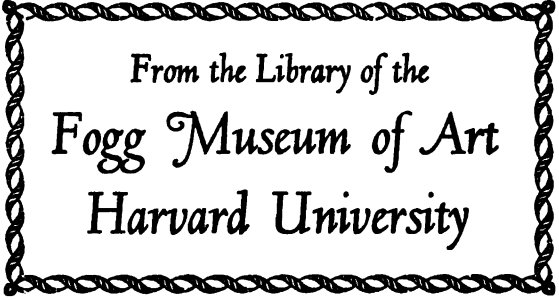
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Daniel Tower



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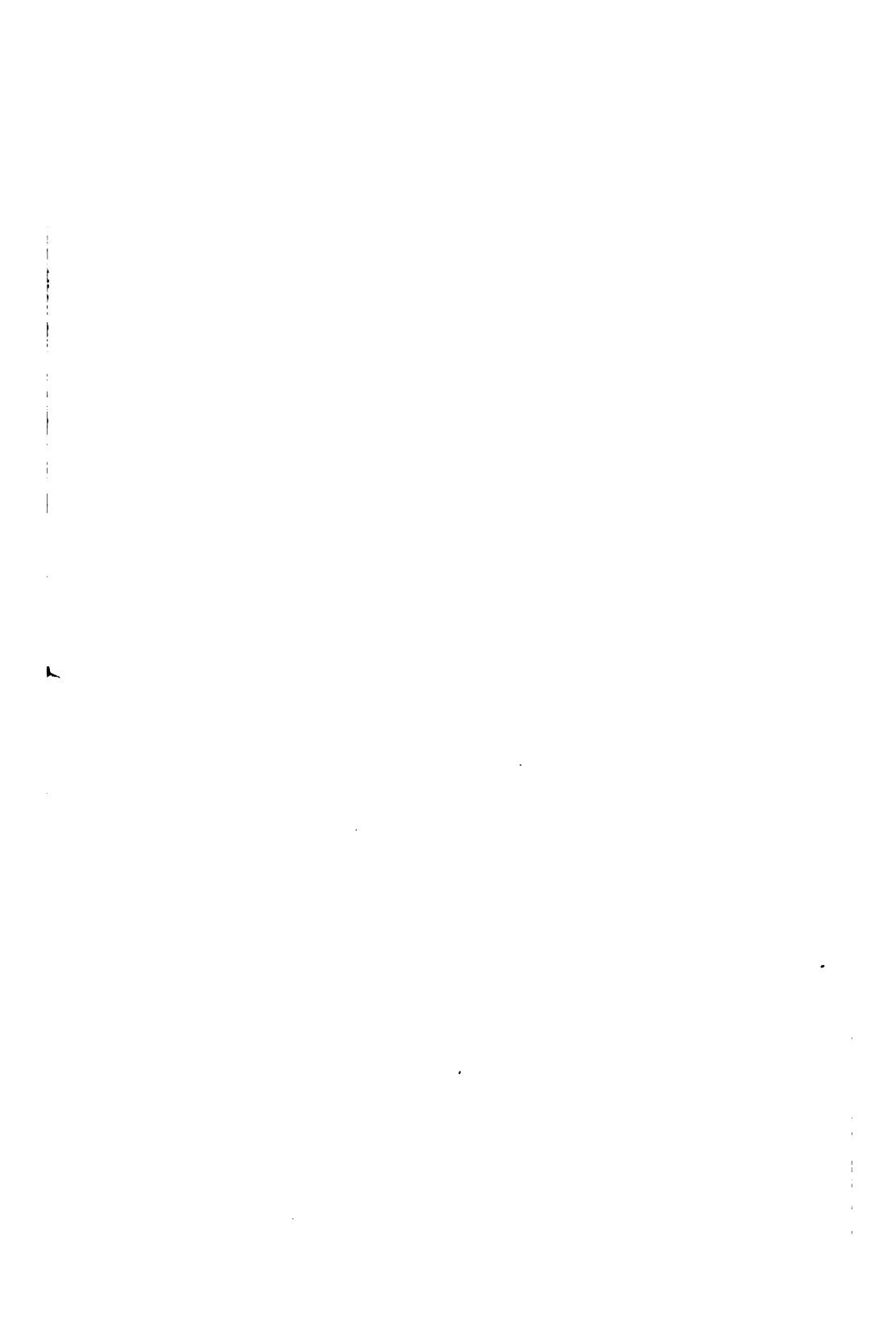
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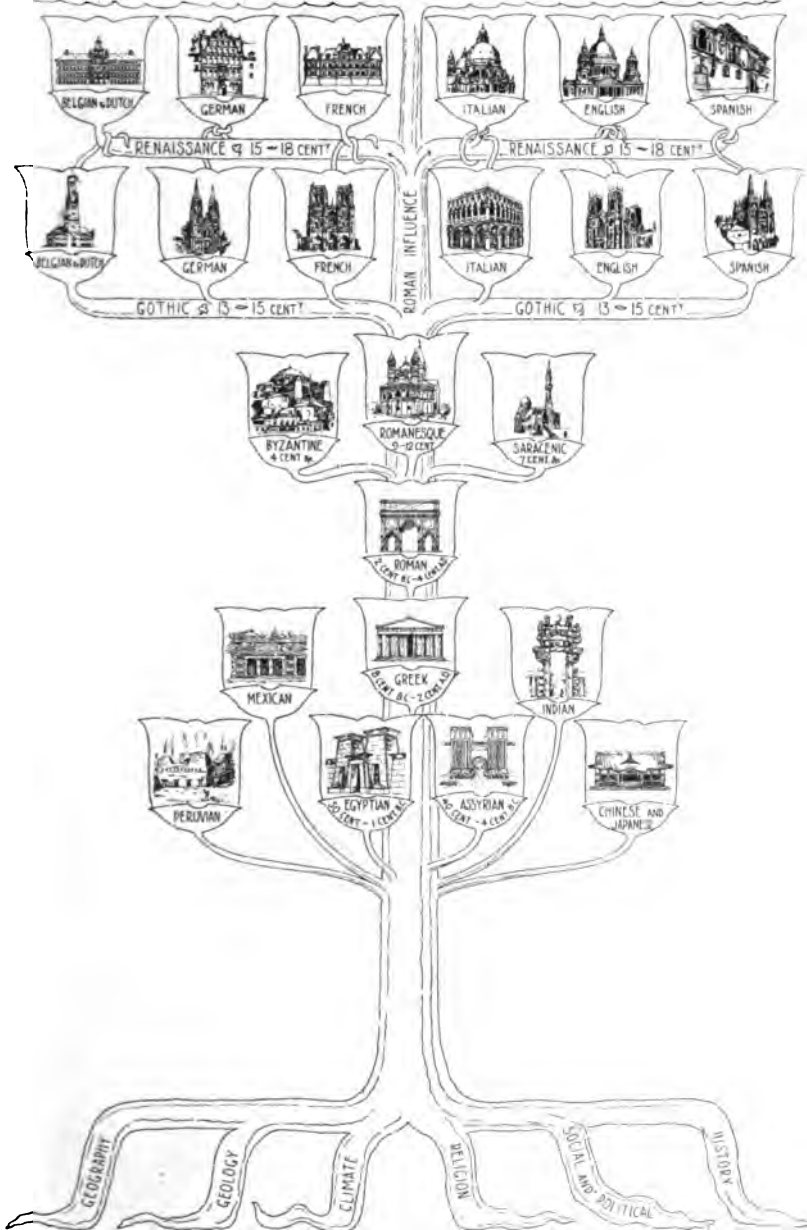
Charles H. Follen

A HISTORY OF ARCHITECTURE
ON
THE COMPARATIVE METHOD.

“ The spirit of antiquity,—enshrined
In sumptuous buildings, vocal in sweet song,
In picture speaking with heroic tongue,
And with devout solemnities entwined—
Strikes to the seat of grace within the mind :
Hence forms that glide with swan-like ease along,
Hence motions, even amid the vulgar throng,
To an harmonious decency confined,
As if the streets were consecrated ground,
The city one vast temple,—dedicate
To mutual respect in thought and deed.”

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THE TREE OF ARCHITECTURE,
Showing the main growth or evolution of the various styles.

The Tree must be taken as suggestive only, for minor influences cannot be indicated in a diagram of this kind.

The Erechtheion.
↓

Propylaea.
↓

The Parthenon.
↓

Statue of
Athena
Promachus. →



Temple of
Nike
Apteros.
←

I.
RESTORATION OF THE ACROPOLIS, ATHENS.
"Athens, the eye of Greece, mother of arts and eloquence," — Milton.

A
HISTORY OF ARCHITECTURE
ON THE COMPARATIVE METHOD

FOR THE STUDENT, CRAFTSMAN, AND AMATEUR

BY

PROFESSOR BANISTER FLETCHER, F.R.I.B.A.

(Formerly Professor of Architecture in King's College, London)

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BANISTER F. FLETCHER, F.R.I.B.A., Architect

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1895, Essay Medallist, 1896, Architectural Association Medallist for Design,
1888, Lecturer at the Architectural Association; Hon. Corr.
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Author of "Andrea Palladio, his Life and Works," etc.)*

FIFTH EDITION, REVISED AND ENLARGED

BY

BANISTER F. FLETCHER

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PREFACE TO THE FIFTH EDITION.

IN the Preface to the Fourth Edition I explained the many important additions which had been made since the original publication of this book in 1896, and I desire to point out that in the present Edition the nature of the revision has been on an even more extensive scale, amounting to the rewriting of the greater portion of the work. While much new matter has been introduced, the importance of a thorough revision of that already existing has not been overlooked, the utmost care having been taken to verify all important statements and dates, and to amplify such descriptions where this appeared desirable. These remarks as to the text, apply equally to the illustrations, which have been increased by the addition of some 700, bringing their total up to about 2,000. Many of the subjects shown in the previous editions have been re-drawn and corrected in the light of the most recent discoveries.

The sale of four large editions in the space of a few years affords strong evidence that the book has been of service not only to the strictly professional student and those connected with design in its application to the minor arts and crafts, but also to that larger body of amateurs to whom Architectural History is year by year becoming a matter of lively interest. It is gratifying to know that it has been adopted as a text-book in Art Schools and in the leading Colleges and Technical Institutions of Great Britain, the United States of America, and Australia, for it is upon these centres we must depend for the formation of a cultivated taste, and the future growth of interest in the Arts.

Many causes have combined in helping towards the proper appreciation and enthusiasm for architecture and the arts of design, among which the greatly increased facilities for travel, the conducted educational tours now so popular, and the general interest in photography are undoubtedly important factors.

The History of Architecture has, however, until recent years

been a scaled book to many who have wandered amongst the most beautiful creations of the building art without being able to understand their meaning or appreciate their quality—a Grecian temple, a Roman amphitheatre, or a Gothic cathedral recalling to them none of the evidences which render each a reflection of its own period in history, and which give to each ancient building a special attraction, besides adding greatly to the interest and enjoyment of its examination.

Architecture has been described very truly as the printing press of all ages, and it appears probable that in these days of enlightenment the study of Architectural History will soon take its proper place as part of a liberal education. It is surely remarkable that it should for so long have been neglected, for is it not the art with which everyone is brought into daily contact, which shelters us from the elements and gives us “Home,” which enshrines and illuminates the most sacred of our thoughts, which is the outcome of conditions intimately bound up with the history of the human race, and, finally, is it not the mother of all other arts, since from it sprang sculpture, painting, and the decorative crafts of the succeeding ages?

The time spent in the study of the architecture of the past will, therefore, never be regretted, for every ruin tells of the history of other days, and enables the character and conditions of men of past periods to be conjured up, thus opening wide to all students and lovers of old buildings the enjoyment of contemplating forms which will then have for them a meaning and a charm.

I am indebted to my brother, Mr. H. Phillips Fletcher, F.R.I.B.A., for helpful criticism in this edition, and to my publisher for his care in the revision of the bibliography and in the general production of the book.

It should, perhaps, be mentioned that, owing to the death of Professor Banister Fletcher, the revision of the fourth and of the present edition has been carried out by me.

BANISTER F. FLETCHER.

29, NEW BRIDGE STREET,
LUDGATE CIRCUS, E.C.
New Year's Day, 1905.

PREFACE TO THE FIRST EDITION.

THE Authors' aim in writing this book has been, not only to give in clear and brief form the characteristic features of the architecture of each people and country, but also to consider those influences which have contributed to the formation of each special style.

They are of opinion that in published works upon the subject, Architecture has often been too much isolated from its surroundings, and that the main points of the physical geography, social progress, and historical development of each country require to be understood by those who would study and comprehend its particular style.

In order to bring out the effects of these influences, and also the qualities of the styles themselves, a *comparative* and *analytical* method has been adopted, so that by the contrast of qualities the differences may be more easily grasped. For instance, the special character of Gothic architecture becomes manifest when put in comparison with the Classic and Renaissance styles; and, furthermore, the shades of difference in the local or national phases of each, can also be equally drawn out by a similar comparative treatment.

The styles themselves are then analysed and the parts contrasted; the analysis being carried out on the basis of the essential parts which every building possesses. As this system pervades the whole book, either the influences, character, examples, or comparative features of each style, can be contrasted with those in any other style. This then is the scheme of the book, which has been divided into five sections in each period, as follows:—

I. INFLUENCES.

- i. Geographical.
- ii. Geological.
- iii. Climate.

1. INFLUENCES—*continued*.

- iv. Religion.
- v. Social and Political.
- vi. Historical.

2. ARCHITECTURAL CHARACTER.

3. EXAMPLES OF BUILDINGS.

4. COMPARATIVE.

- A. *Plan*, or general distribution of the building.
- B. *Walls*, their construction and treatment.
- C. *Openings*, their character and shape.
- D. *Roofs*, their treatment and development.
- E. *Columns*, their position, structure, and decoration.
- F. *Mouldings*, their form and decoration.
- G. *Ornament*, as applied in general to any building.

5. REFERENCE BOOKS.

SECTION 1 is divided into the six leading influences that may be expected to shape the architecture of any country or people, the first three being structural, the next two the civilizing forces, and the last containing those external historical events which may alter or vary the foregoing.

SECTION 2 describes the character of the architecture, that is, its special quality, and the general effect produced by the buildings as a whole.

SECTION 3 contains the examples, *i.e.* the chief buildings in each style, briefly named and described, being the *corpus*, which the preceding influences affect and from which the subsequent comparative analysis is deduced.

SECTION 4 is this comparative analysis, in which every style of architecture is regarded as the solution of certain fundamental problems, *i.e.* each building must have all or most of the parts A to G, and consequently there is both interest and instruction to be gained in learning and comparing how each style has solved these points of the problem.

SECTION 5 gives authorities and more especially directs the reader who wishes to pursue the study of any style in further detail.

In treating of the buildings themselves under Section 3 the authors have endeavoured to avoid long descriptions, which are

necessarily technical and intolerably dry, and difficult to follow, even by those who have had the technical training, and have either the building or complete drawings of it before them. They have therefore provided the largest possible number of illustrations, and have confined the text to brief, but it is hoped vivid, notes of the special qualities and characteristics of the building referred to.

It is hoped that the book will appeal not only to students who require an outline of architectural history as part of their artistic and professional education, but also to the increasing number of art workers who are interested in architecture in its relation to those accessory arts in which they are engaged. Lastly; it is believed that a work in which architecture is treated as a result and record of civilization, will prove attractive to that increasing public which interests itself in artistic development.

29, NEW BRIDGE STREET,
LUDGATE CIRCUS, E.C.
New Year's Day, 1896.

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66.	Arch of Septimius Severus	Photo.
67.	Roman Ornament—I.	
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68.	Roman Ornament—II.	
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74.	Basilica Church of S. Paul, Rome		Photo.
75.	Early Christian Examples—II.		
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77.	S. Stefano Rotondo, Rome		Photo.
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87.	Byzantine Examples—IV.	
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97.	Monreale Cathedral, Sicily	Photo.
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102.	Porch of S. Trophime, Arles	Photo.
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106.	Worms Cathedral	Photo.
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FOR EACH STYLE.

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- II. GEOLOGICAL.
- III. CLIMATE.
- IV. RELIGION.
- V. SOCIAL AND POLITICAL.
- VI. HISTORICAL.

2. Architectural Character.

3. Examples.

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- D. **Openings**, their character and shape.
- E. **Columns**, their position, structure, and decoration.
- F. **Mouldings**, their form and decoration.
- G. **Ornament**, as applied in general to any building.

5. Reference Books.

A

HISTORY OF ARCHITECTURE

ON THE

COMPARATIVE METHOD.

PREHISTORIC ARCHITECTURE.

“ Study mere shelter, now for him, and him ;
Nay, even the worst—just house them ! Any cave
Suffices ; throw out earth ! A loop hole ? Brave !
 . . . But here's our son excels
At hurdle weaving any Scythian ; fells
Oak and devises rafters ; dreams and shapes
His dream into a door post, just escapes
The mystery of hinges. . . .
 The goodly growth
Of brick and stone ! Our building-pelt was rough,
But that descendants' garb suits well enough
A portico-contriver.

* * * * *

The work marched : step by step—a workman fit
Took each, nor too fit—to one task, one time—
No leaping o'er the petty to the prime,
When just the substituting osier lithe
For brittle bulrush, sound wood for soft withe,
To further loam-and-rough-cast work a stage,
Exacts an architect, exacts an age.”—BROWNING.

THE origins of architecture, although lost in the mists of antiquity, must have been connected intimately with the endeavours of man to provide for his physical wants. It has been truly said that protection from the inclemency of the seasons was the mother of architecture. According to Vitruvius, man in his primitive savage state began to imitate the nests of birds and the lairs of beasts, commencing with arbours of twigs covered with mud, then huts formed of branches of trees and covered with turf (No. 2 c). Other writers indicate three types of primitive dwellings—the *caves* (No. 2 H) or rocks or those occupied in hunting or fishing,

PREHISTORIC ARCHITECTURE.



(A) THE HUT



(B) MONOLITH.
LOCMARIAKER, BRITTANY.



(C) SHIELINGS JURA, SCOTLAND.



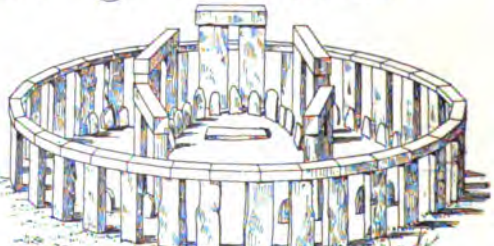
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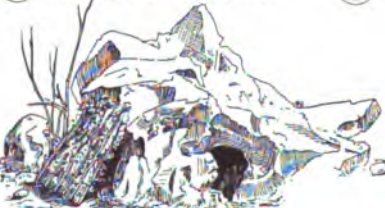
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(F) DOLMEN NEAR REGNIER, SAVOY.



(G) STONEHENGE, AS RESTORED BY WALTRE.
THE DIAMETER OF LARGE STONE CIRCLE IS 106 FT.



(H) CAVE DWELLING.



(J) TENTS

the *hut* (No. 2 A, D, E) for the agriculturist, and the *tent* (No. 2 J) for those such as shepherds leading a pastoral or nomadic life.

Structures of the prehistoric period, although interesting for archæological reasons, have little or no architectural value, and will only be lightly touched upon.

The remains may be classified under :—

i. **Monoliths**, or single upright stones, also known as *menhirs*, a well-known example 63 feet high, 14 feet in diameter, and weighing 260 tons, being at Carnac, Brittany. Another example is at Locmariaker, also in Brittany (No. 2 B).

ii. **Dolmens** (Daul, a table, and maen, a stone), consisting of one large flat stone supported by upright stones. Examples are to be found near Maidstone and other places in England, also in Ireland, Northern France, the Channel Islands, Italy (No. 2 F) and India.

iii. **Cromlechs**, or circles of stone, as at Stonehenge (No. 2 G), Avebury (Wilts), and elsewhere, consisting of a series of upright stones arranged in a circle and supporting horizontal slabs.

iv. **Tumuli**, or burial mounds, were probably prototypes of the Pyramids of Egypt (No. 4) and the beehive huts found in Wales, Cornwall, Ireland (No. 2 D, E) and elsewhere. That at New Grange (Ireland) resembles somewhat the Treasury of Atreus at Mycenæ (No. 15).

v. **Lake Dwellings**, as discovered in the lakes of Switzerland, Italy and Ireland consisted of wooden huts supported on piles, and were so placed for protection against hostile attacks of all kinds.

These foregoing primitive or prehistoric remains have little constructive sequence, and are merely mentioned here to show from what simple beginnings the noble art of architecture was evolved, although unfortunately the stages of the evolution cannot be traced, owing to the fact that the oldest existing monuments of any pretension, as in Egypt, belong to a high state of civilization.

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PART I.

THE HISTORICAL STYLES.

GENERAL INTRODUCTION.

"Deal worthily with the *History of Architecture* and it is worthy to take its place with the History of Law and of Language."—FREEMAN.

IN introducing this Comparative treatment of Historical Architecture, a general outline sketch is given of the course which the art has taken up to the present time in Europe, and also in those countries, such as Egypt and Assyria, which have influenced that development.

Architecture may be said to include every building or structure raised by human hands, and is here defined as construction with an artistic motive: the more the latter is developed, the greater being the value of the result.

The first habitations of man were undoubtedly those that nature afforded, such as caves (No. 2 H) or grottoes, which demanded little labour on his part to convert into shelters against the fury of the elements, and attacks from his fellows or wild animals.

As soon as man rose above the state of rude nature, he naturally began to build more commodious habitations for himself, and some form of temple for his god. Such early forms are given under the heading of Prehistoric Architecture.

To pass, however, at once into Historic times, there prevailed in Egypt a system of architecture which consisted of a massive construction of walls and columns, in which the latter—closely spaced, short, and massive—carried lintels, which in their turn supported the flat beamed roof. In Babylonia, the development of brick construction with the consequent evolution of the arch and vault was due to the absence of more permanent building materials. The influence of Egyptian and Assyrian architecture on that of Greece is apparent in many directions.

Grecian architecture is considered by many to have had its origin in the wooden hut or cabin formed of posts set in the earth, and covered with transverse beams and rafters, and this was the type which was developed in the early Mycenæan period into the *prodomus* of the Greek house. This timber architecture, copied in marble or stone, was naturally at first very simple and rude; the influence of the material, however, was soon felt, when the permanence and value of stone aided in the growth of the art. It should be noted, however, that many writers hold that Greek architecture is developed from an early stone type. As civilization and technical skill, moreover, advanced, the qualities of refinement in detail and proportion were perceived, and the different orders of architecture—Doric, Ionic, and Corinthian (No. 38)—came into existence. By the word "order" is meant certain methods of proportioning and decorating a column, and the part it supports, *i.e.*, the entablature. The above "orders" are characteristic of Greek architecture, and the beauty and grace with which they were treated, and the artistic and mathematical skill with which they were constructed, illustrate the keen artistic temperament of the Greeks.

Greece eventually succumbed to the conquering Romans who, however, adopted their architecture, and in many cases employed Greek artists in the erection of their buildings. While borrowing this trabeated architecture, they added the use of the arch, which they had probably already learnt to construct from the Etruscans, the ancient inhabitants of Central Italy.

The *column and arch* were used conjointly by the Romans for some time, good examples being the Colosseum at Rome (Nos. 62 and 63), and the Triumphal Arches (Nos. 65 and 66). This dualism is a very important fact to remember, because, as will be seen, it eventually ended in the exclusion of the beam altogether, and in the employment of the arch alone, throughout the entire constructive system of the building. In the numerous buildings which the Romans erected, it will be noticed that the column has, in the generality of cases, become merely a decorative feature, the actual work of support being performed by the piers of the wall behind, connected together by semicircular arches.

As time went on, however, such practical people as the Romans could not but discard a feature which was no longer utilitarian, so the column as a decorative feature disappeared, and the arcuated system it had masked was exposed.

Columns were, however, used constructively, as in many of the great basilicas, in which the semicircular arches spring directly from their capitals. As the Romans conquered the whole of the then known world, that is to say, most of what is now known as Europe (No. 45), so this feature of the semicircular arch was introduced in every part, by its use in the settlements

which they founded. Roman architecture was prevalent in Europe in a more or less debased form up to the tenth century of our era, and is the basis on which European architecture is founded. The gradual breaking up of the Roman Empire, the formation of separate European states, and other causes which we shall enumerate separately, led to many variations of this semicircular arched style, both in construction and decoration.

The transition commenced in the tenth, eleventh, and twelfth centuries, when the later Romanesque, so called as being derived from the Roman style, was in vogue. Constructive necessity, aided largely by inventive genius, led, in the latter part of the twelfth century, to the introduction of the pointed arch.

The pointed arch is the keynote of what is known as the Gothic or pointed style, which prevailed throughout Europe during the thirteenth, fourteenth, and fifteenth centuries, during which period were erected those magnificent cathedrals and churches, which form the most emphatic record of the religious feeling and character of the Middle Ages.

The past styles of European architecture may be broadly summarized as being divided into two great types, viz.: (1) *Classic*, or the architecture of the beam, and (2) *Gothic*, or the architecture of the arch. Each of these types depends on an important constructive principle, and any style may be placed under one or other of these types.

The early styles, including the Greek, belong to the former. Roman architecture is a composite transition style, whose goal, if unchecked, would seem to have been the combination of the round arch and dome that are seen in the great examples of the Byzantine style. It was left to the Gothic style to formulate a complete system of arcuated construction, the working out of which was marvellously alike in all countries. It was a style, moreover, in which a decorative system was closely welded to the constructive, both uniting to reflect a more intense expression of its age than had, perhaps, hitherto been achieved in previous architecture.

The revival of the arts and letters in the fifteenth century was a fresh factor in the history of architecture. The condition of Europe at that period was one of ripeness for a great change, for the Gothic system, whether in architecture or in civilization regarded as a whole, may fairly be said to have culminated. Its latest works were tinged by the coming change, or showed signs of becoming stereotyped by the mechanical repetition of architectural features.

The new force was the belief that the old Romans had been wiser and more experienced than the mediævalists, and the result was the earnest study of every Roman fragment, whether of art or literature, that had been preserved or could be recovered.

For some three centuries this belief held good, till by the opening up of Greece to travel and study towards the end of the eighteenth century, the tradition was modified by the admission of Grecian remains to an equal or supreme place, beside or even above those of Rome.

This second phase had not, however, an equal success for divers reasons; a reaction was at hand in favour of mediæval ideals, whether in the church, art, or the State.

A conscious effort was then made—the most earnestly in England—to modify the current that had been flowing since the year 1500, and some of the results of this attempt may be traced by the student wise enough to follow up the clues indicated in the concluding pages of the English Renaissance style. In acquainting himself with the buildings therein mentioned, he may feel that few of the diverse elements of our complex civilization, at the beginning of the twentieth century, have failed to find some architectural expression.

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account of its value as a trade route, and as a means of communication, but also because its waters were the fertilizing agents that made desert sands into fruitful fields. It was on the banks of this ancient river that from time immemorial the cities of the Egyptians were naturally placed; here, therefore, are found the chief remains of the Tombs, Temples, and Pyramids.

ii. Geological.—In this section throughout the volume an endeavour will be made to trace that influence on architectural style which the materials at hand in each country had in its development. The natural products of a country such as wood, brick, or stone, determine to a large extent its style of art.

In Egypt there existed an abundance of limestone in the north, of sandstone in the central region, and of granite in the south. The latter is principally found near Assuân (Syene), and is called Syenite. This hard and lasting building material largely influenced the architecture of the country, and to its durable qualities is due the fact that there are so many remains. Bricks were also employed, but were generally faced with some harder material. Wood of a kind suitable for building was not available, only small forests of palm and acacia existing.

iii. Climate.—The climate is equable and of warm temperature, snow and frost being wholly unknown, while storm, fog, and even rain are rare, which accounts to a large extent for the good preservation of the temples. Egypt has been said to have but two seasons, spring and summer. The climate was thus of importance in developing the qualities of the architecture, admitting of simplicity in construction, for though it demanded some protection against heat there was no necessity to provide against inclement weather.

iv. Religion.—A close connection between religion and architecture is everywhere manifest at this epoch. The priesthood was powerful, possessed of almost unlimited authority, and equipped with all the learning of the age. The religious rites were traditional, unchangeable, and mysterious. A tinge of mystery is one of the great characteristics of the Egyptian architecture as well in its tombs as in its temples. The Egyptians attained to a very high degree of learning in astronomy, mathematics, and philosophy; the remains of their literature have been preserved to us in the papyri, or MSS. written on paper made from the pith of the papyrus. In theory the religion was monotheistic, but in practice it became polytheistic; a multiplicity of gods was created by personifying natural phenomena, such as the sun, moon, and stars, as well as the brute creation. The Egyptians were strong believers in a future state; hence their care in the preservation of their dead, and the erection of such everlasting monuments as the Pyramids. Herodotus mentions

that the dwelling-house was looked upon by them as a mere temporary lodging, the tomb being the permanent abode.

“What availeth thee thy other buildings?
Of thy tomb a'one thou art sure.
On the earth thou hast nought beside;
Nought of thee else is remaining.”

v. Social and Political.—A vast population was available for employment on public works, the workmen probably receiving no other pay than their food. Thus a state of cheap labour existed which was eminently favourable to the execution of large and important structures. In addition there existed a centralized despotic government which, perhaps more than any other, favoured the execution of monumental works. It is assumed by some that the spare time which occurs during the annual floods enabled the population to be employed on these state buildings. It is also possible that the transport of stone required for the great buildings was effected by means of rafts floated down at this season. During the reign of Rameses II. the captives and foreigners, who had largely increased, were put to enforced labour upon the public works, and in the first chapter of the book of Exodus the natives are said to have viewed with alarm the growing numbers and power of these strangers.

vi. Historical.—Egyptian civilization is the most ancient of any of which there is a clear knowledge; its history is partly derived from Holy Scripture and from Greek and Roman authors, but more particularly from the Egyptian buildings, by which it can be traced back for more than 4,000 years B.C. The Pyramids are thought to be a thousand years older than any building which has yet been discovered in Western Asia, the subject of the next division. The Kings or Pharaohs (from the title “Peraa” = “great house”) have been arranged in thirty dynasties, extending down to B.C. 332. These have been based on the list of Manetho, an Egyptian priest who lived about B.C. 300, and compiled a history of Egypt in the Greek language, and may be divided into the following periods:—

1. *Prehistoric Period*, B.C. 23000 (?)–4777.
2. *The Ancient Empire* (Dynasties I.–X.), B.C. 4777–2821.
The capital being at Memphis, the tombs of this period are at Abydos, Nakâdeh, Memphis, Sakkâra, Gizeh and Abusir.
3. *The Middle Empire* (Dynasties XI.–XVI.), B.C. 2821–1738.
A prosperous period in which much building was carried out. This period includes the dynasties of the “Hyskos” or shepherd kings.
4. *The New Empire* (Dynasties XVII.–XX.), B.C. 1738–950.
This period had Thebes as the capital, and many imposing buildings were erected at Karnac, Luxor, and elsewhere.

5. *Period of Foreign Domination* (Dynasties XXI.-XXV.), B.C. 950-663.
6. *The Late Egyptian Period* (Dynasties XXVI.-XXX.), B.C. 663-332. This period includes the Persian Domination.
7. *The Græco-Roman Period*, B.C. 332-A.D. 640:
 - i. Alexander the Great and Ptolemaic Period, B.C. 332-30.
 - ii. The Roman Period, B.C. 30-A.D. 395.
 - iii. The Byzantine Period, A.D. 395-640.
8. *Mediæval Egypt* (Mahometan Period), A.D. 640-1517.
9. *Modern Egypt* (Turkish Domination), A.D. 1517 to the present time.

This section of the book deals with the architecture comprised in Periods 1-7. For periods 8 and 9 see pages 653, 659.

The nineteenth dynasty, founded by Rameses I. (B.C. 1400-1366), may be taken as the most brilliant epoch of Egyptian art. The evidence of his greatness, and that of his grandson, Rameses II. (B.C. 1333-1300), as builders, is to be seen in the Temples of Thebes and elsewhere. During the twenty-sixth dynasty the country was conquered by the Persians in B.C. 527, from whom it was wrested in B.C. 332 by the Grecian general, Alexander the Great. On Alexander's death and the division of his empire, Egypt passed to Ptolemy, one of Alexander's generals, who founded a dynasty that ruled from B.C. 323 to B.C. 31. After the wars which ended in the death of Cleopatra, Egypt passed, as did nearly the whole of the then known world, into the hands of the conquering Romans, and became a Roman province. On the spread of Mahometanism, in A.D. 638, Egypt was conquered by the Arabs, who left important monuments (see Saracenic Architecture, page 659). In A.D. 1517 it became a part of the Turkish dominions.

2. ARCHITECTURAL CHARACTER.

In the valley of the Nile, the land which is the gift of a great river, and the seat of the most ancient civilization, a primitive architecture of mud or puddled clay and bundles of reeds changed in later times to a style of stone and granite.

The primitive structure was composed of bundles of reeds bound together and placed vertically in the ground at intervals, the angle bundles being of greater strength. Joining these reeds, at the top, were laid horizontally other bundles, which bound the heads of the uprights together. The origin of the characteristic cornice (No. 10 J), is held to be due to the pressure of the clay, of which the primitive roofs were constructed, on the upright reeds, which formed the framework of the walls. This formed the slightly projecting cornice, the reeds keeping the rammed clay in a projecting position and allowing the curve to be terminated by a flat fillet which gave the level of the terrace. The jambs and

lintels of the doors and windows were made of reeds in the humbler dwellings and of palm trunks in those of more pretension.

Here, then, is seen a fair and likely prototype of the construction of an Egyptian wall, the form of which is more suitable to a structure of rushes overlaid with mud or puddled clay than to one consisting of large stones. Still, an important point remains—the batter or slope which is invariably given to the walls. Viollet-le-Duc's theories as to the origin of this batter do not point to the influence of material, and this feature is alleged by him to have been introduced at a later stage, having been promulgated by a royal decree. He infers the custom to have been derived from the Pyramids, which were found to remain undisturbed during earthquakes, while straight-sided houses were upset, owing to their walls being more easily overturned. It seems, however, more reasonable to attribute it to a mud origin, for nothing would be more natural, in order to strengthen such buildings, than to slightly tilt the bundles of reeds towards the interior, forming as it were an arch, a treatment which in any other material scarcely seems to be feasible.

Proceeding to the internal architectural features of the style, a very distinct reminiscence of the primitive reeds tied together at intervals, and crowned with the lotus bud, is found in the later granite column and capital (No. 10 L, M). During the Theban kingdom especially (B.C. 3000–B.C. 2100), examples in stone of capitals and columns derived from timber and reed originals are frequent. At Beni-Hasân some pillars represent a bundle of four reeds or lotus stalks bound together near the top and bulging above the ligature, so as to form a capital, in imitation of a lotus bud. Such a pier must evidently have been originally employed in wooden architecture only, and the roof which it supports, in this instance, represents a light wooden construction having the slight slope necessary in the dry Egyptian climate.

This type of column was largely used in later Egyptian times in a more substantial lithic form (No. 10 M), and in conjunction with the hollow-formed capital of the bell type (No. 10 L), of which the earliest example appeared in the eighteenth dynasty.

In fact, throughout, although materials changed, the forms of the early reed and clay construction were adhered to; and the endeavour of the conservative Egyptian was to reproduce in stone and granite, superimposed in layers, the appearance assumed in the early reed and mud type.

The surface decoration executed on the later granite buildings (No. 10 P), apparently came from the "sgraffito" (incised plaster) work on the earlier mud walls. The surfaces of such walls could not be modelled or carved with projections of high relief, but their flat surfaces, when plastered, provided an admirable field for decoration and for instruction through the use of hieroglyphics. The

EGYPTIAN ARCHITECTURE.



THE SPHINX, CAIRO.
With the Pyramids in the background.

Egyptian system of decoration consisted in not contravening the form adopted, but in clothing it with a kind of drapery more or less rich, which never presented a projecting outline, contenting itself with enveloping the geometric form as would an embroidered stuff, or a diapered covering.

Remarkable then as were the arts of Egypt, it is clear that the spirit of criticism and logical method were wanting; and that traditional forms, hallowed by long use, were clung to and reproduced when the method of building which suggested them had been replaced by other systems. Egyptian art proceeded on an uninterrupted line or course of tradition, and when necessity dictated a change in the methods of construction, or in the materials, the immutable form was not thereby affected, but was perpetuated in spite of novel conditions.

The principal remains of ancient Egyptian architecture are the Pyramids, or royal tombs of the kings, and the temples, a contrast in this respect with Assyria, where the palaces of the kings are the chief remains. The Egyptian wall-paintings, sculptures, jewellery, bronze implements and utensils, which have been unearthed from their temples or tombs, show that the race had attained to a high degree in art. As regards the architecture, the impression given to the mind of the spectator is that these buildings were erected for eternity, all the remains having a character of immense solidity, and usually of grand uniformity.

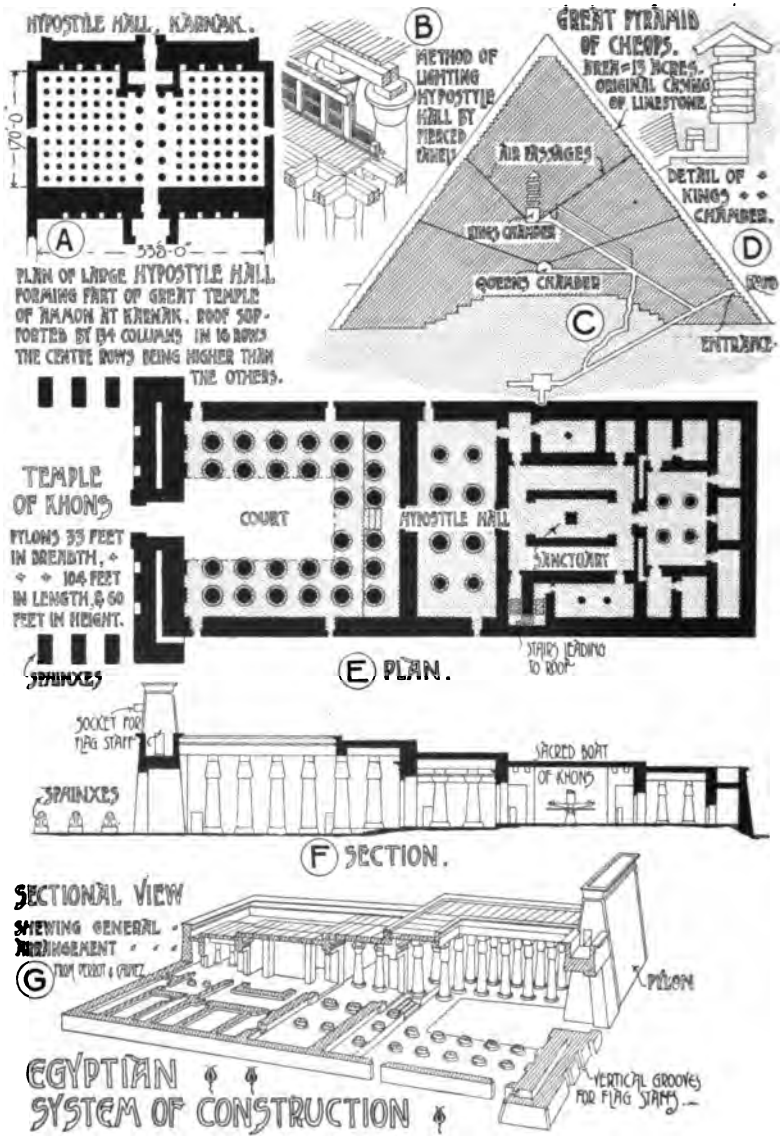
The Pyramids (Nos. 4 and 5) are the most extravagant of all ancient buildings in many ways. The relative return in impressiveness and the higher beauties of the art is small when compared with the amount of labour, expense, and material used in their erection.

The finishing and fitting of such large masses of granite is remarkable, for many of the blocks, perfectly squared, polished and fitted, are at least 20 feet long by 6 feet wide. The method of quarrying and of transportation for long distances by land and water, and the raising of these blocks of stone into position, is even now uncertain, although M. Choisy in his latest work (see Reference Books, page 30) has produced many probable theories.

The Architectural Character of the temples is striking and characteristic (Nos. 5, 7 and 8). The buildings decrease in height from front to back, presenting a disconnected collection of various sized structures, often built at different times, and thus forming a direct contrast to the harmonious whole of a Greek temple, which is all comprised within one "order" of columns, and which is distinctly, both in appearance and reality, one building.

The character of the tombs consists in the planning of their mysterious chambers and corridors, which, covered with paintings and hieroglyphics, produce an effect of gloom and solemnity on the spectator.

EGYPTIAN EXAMPLES.



3. EXAMPLES.

THE SPHINX

(No. 4), whose date is unknown, is situated near the great pyramids, in the centre of an ancient stone quarry, and is a natural rock cut to resemble a Sphinx, with rough masonry added in parts. An Egyptian Sphinx (No. 100) had the head of a king, a hawk, a ram, or more rarely a woman, on the body of a lion. The dimensions of the Great Sphinx, which represents a recumbent lion with the head of a man, are as follows: it is 65 feet high by 188 feet long, the face is 13 feet 6 inches wide, and the mouth 8 feet 6 inches long. Greatly mutilated, it is still a marvel, as it has been throughout the ages. The symbol for an insoluble problem, it is, and probably ever will be, a mystery. It was excavated in 1816 by Captain Caviglia, who found a temple between the paws, and it has since been examined by Mariette and Maspero.

THE PYRAMIDS

of Gizeh, near Cairo, all erected during the fourth dynasty (B.C. 3998–B.C. 3721), form one of several groups within the necropolis of the ancient capital city of Memphis, and rank among the oldest monuments of Egyptian architecture. The other groups are those of Abu-Roash, Zāwiyet-el-Aryān, Abusir, Sakkāra, and Dashūr.

These were built by the kings as their future tombs, the governing idea being to secure immortality by the preservation of the mummy, till that time should have passed, when, according to their belief, the soul would once more return to the body. Their construction has been described by many writers, including Herodotus.

The **Great Pyramid** (Nos. 4 and 5 c, D), by **Cheops** (Khufu) (B.C. 3733–B.C. 3700); the **Second Pyramid** (No. 4), by **Cephron** (Khafra) (B.C. 3666–B.C. 3633); the **Third Pyramid** by **Mycerinos** (Menkhara) (B.C. 3633–B.C. 3600), are the best known examples.

The Great Pyramid of Cheops is square on plan, 760 feet each way, its area being about 13 acres, *i.e.*, twice the extent of S. Peter, Rome, or equal to the size of Lincoln's Inn Fields, London. The faces of the pyramid are equilateral triangles laid sloping and meeting in a point. The sides face directly north, south, east and west, as in all the pyramids, and they make an angle with the ground of 51 degrees 50 minutes. The original height was 482 feet. The entrance (No. 5 c), which is on the northern side, is 47 feet 6 inches above the base, and is now reached by means of an earthen embankment. The passage to which it

gives access first slopes downwards, and afterwards re-ascends towards the heart of the pyramid, where the King's Chamber is situated. In this chamber, which is 34 feet 6 inches by 17 feet and 19 feet high, was placed the sarcophagus of the king containing his embalmed body. The upper part is elaborately constructed with stones one above the other (No. 5 D), and the entrance is protected by a massive stone acting as a portcullis, fitting into a rebate or recess, and weighing from 50 to 60 tons. Two air channels, each about 8 inches by 6 inches, led to the outer face of the pyramid for ventilation.

There were two other chambers in the Great Pyramid, one known as the Queen's Chamber, connected with a passage leading off that to the King's Chamber, and the other below the ground.

The exterior of this pyramid was originally cased with a sloping face of limestone, but this has now disappeared, showing the original stepped surface in tiers of 4 feet, on which the casing was placed, and which still exists in the Pyramid of Mycerinos.

TOMBS.

Besides the Pyramids or royal tombs are others for private individuals.

(a.) In the Ancient Empire the *Mastabas*, probably derived from rude heaps of stones piled up over earlier mummy holes, were rectangular structures, with sides sloping at an angle of 75 degrees, and having flat roofs. They were divided into three parts:—

- i. The *outer chamber*, in which were placed the offerings to the "Ka" or "double," having its walls decorated with representations of festal and other scenes, which are valuable from an historical standpoint.
- ii. *Inner secret chambers*, known as the "serdabs," containing statues of the deceased, and members of his family.
- iii. A *well* of great depth, leading to the chamber containing the sarcophagus with its mummy.

The **Mastaba of Thy, Sakkâra**, is well preserved and has been restored. It dates from the fifth dynasty, and was erected to Thy, who in his day held the position of royal architect and manager of pyramids. It consists of a small vestibule, beyond which is a large court where offerings to the deceased took place, and from which a mummy shaft led through a passage to a tomb chamber. The masonry of this tomb is carefully jointed and covered with flat reliefs, which are generally considered the best specimens of their kind. The principal reliefs are in a second tomb chamber, 22 feet 9 inches by 23 feet 9 inches and 12 feet 6 inches high. These reliefs represent harvest operations, ship-building scenes, scenes representing the arts and crafts of the



6. **TOMB AT BENI-HASÁN, EGYPT.**
Prototype of the Greek Doric Order.

period, the slaughtering of sacrificial animals, and Thy himself sailing through the marshes in a boat with a surrounding papyrus thicket.

(b.) In the Middle Empire tombs were either of the Pyramidal form, as at Abydos, or were rock-cut, as in the vertical cliffs bounding the Nile valley (No. 6).

The **Tombs at Beni-Hasân**, in Upper Egypt, form a remarkable group of these rock-cut examples. There are 39 in all, arranged in a row in the rocks as shown (No. 6). They were made during the twelfth dynasty (B.C. 2778-2565), a period which was particularly remarkable for the progress of the arts of peace. The entrance to the Tomb of Khnemhotep, known as Tomb No. 3, has two sixteen-sided columns, sometimes considered to be a prototype of the Greek Doric order. These are slightly fluted and have an entasis, and the deeply projecting cornice has stone beams carved out of the solid rock, indicating a derivation from a wooden origin.

(c.) During the New Empire tombs were rock-cut and structural, and in many cases accompanied by sepulchral temples.

Thebes, which for a time was the necropolis of the Egyptian kings, has a large number of tombs dating mostly from the New Empire, and forming a contrast to the pyramids which formed the graves of the earlier kings. These tombs consist of a series of chambers connected with passages hewn in the rock, and were intended only for the reception of the sarcophagi. Amongst the most important of these are those of Rameses III., IV., and IX., and that of Sethos I., usually known as Belzoni's tomb from its discoverer in 1817. The structure of all is very similar, consisting of three corridors cut in the rock leading into an ante-room, beyond which is the sepulchral chamber, where the granite sarcophagus was placed in a hollow in the floor. The walls, from the entrance to the sarcophagus chamber, were sculptured with hieroglyphics of pictures and texts necessary to the deceased in the future life, and mostly representing him sailing through the under-world accompanied by the sun god. The texts were mostly taken from various books relating to the ceremonies which were essential for insuring the immortality of the departed.

The mortuary or sepulchral temples, such as those of Dêr-el-bahri, Medinet-Habou, the Ramesseum, and others, were utilized for offerings and other funereal rights for the dead.

TEMPLES.

The purposes for which they were used and their component parts are important. They were sanctuaries where only the king and priests penetrated, and in which mysteries and processions formed a great part of the religious services. They differ,



7.

TEMPLE AT PHILÆ.
Entrance Court, showing Pylons.

therefore, from the Greek temple, the Christian church, and the Mahometan mosque, for they were not places for the meeting of the faithful or the recital of common prayers, and no public ritual was celebrated within them. The priests and king only were admitted beyond the hypostyle hall, and the temple, therefore, was a kind of royal oratory reared by the king in token of his own piety and in order to purchase the favour of the gods.

The student is referred to Lockyer's theories as to the orientation of temples with regard to the particular stars.

The "mammeisi" were temples (dedicated to the mysterious accouchement of Isis) each consisting of one small chamber with statue and altar as at Elephantine, approached by a flight of steps. In this form they are generally considered to be the prototypes of the Greek temples. The more usual type of temple, however, consisted of chambers for the priests, with courts, colonnades, and halls, all surrounded by a high wall.

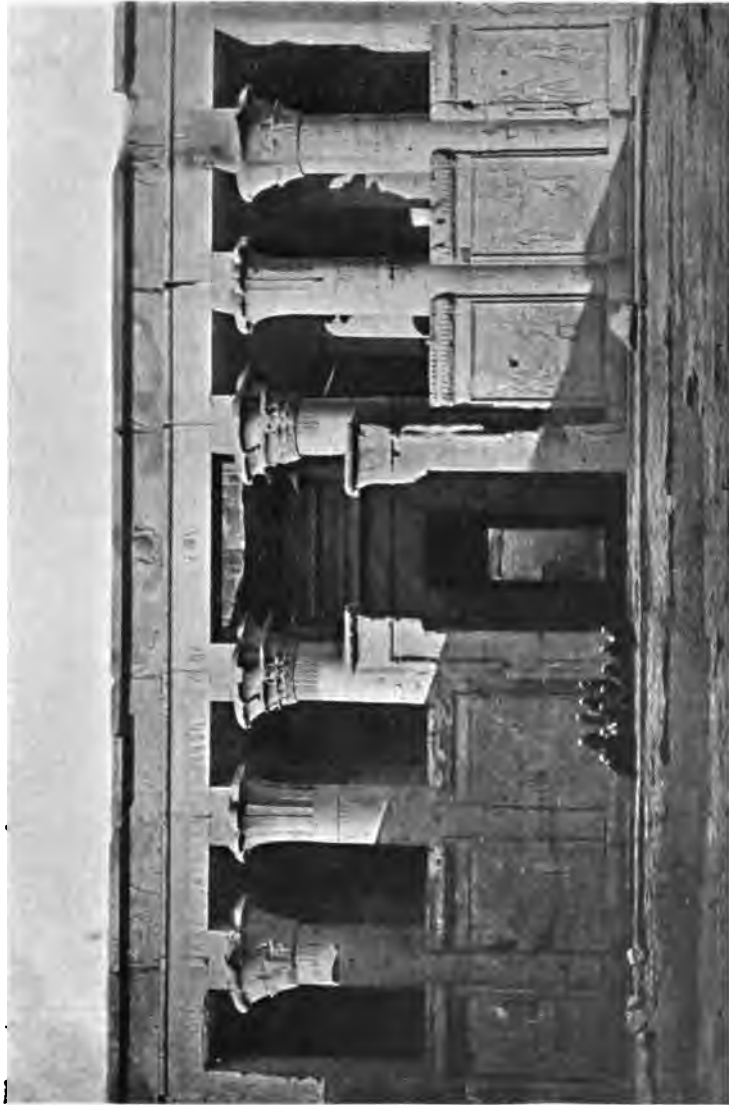
In order that the student may understand the general distribution of the parts of an Egyptian temple, a plan is here given of the **Temple of Khons**, near the Great Temple of Ammon, at Karnac (No. 5), on the eastern bank of the Nile, which may be taken as a fair example of the ordinary type of plan.

The entrance to the temple was between "pylons," or massive sloping towers, on each side of the central gateway (No. 7). In front of the entrance were placed obelisks, and in front of these an avenue of sphinxes, forming a splendid approach to the temple. This entrance gave access to the large outer courtyard, which was open to the sky in the centre, and therefore called "hypæthral" (from two Greek words, meaning "under the air"). This courtyard was surrounded by a double colonnade on three sides, and led up to the hypostyle hall, in which light was admitted by means of a clerestory above, formed by the different height of the columns (No. 5 B). Beyond this is the sanctuary, surrounded by a passage, and at the rear is a smaller hall; both the last chambers must have been dark or only imperfectly lighted.

The whole collection of buildings forming the temple was surrounded by a great wall as high as the buildings themselves.

Thebes, the site of which occupied a large area on the east and west banks of the Nile, was the capital of Egypt during the New Empire (Dynasties XVII.-XX.). The eastern bank had an important group of Temples at Karnac, including the Great Temple of Ammon, and the Temple of Khons (twentieth dynasty). At Luxor, also on the eastern bank, was another Temple of Ammon (eighteenth and nineteenth dynasties). On the western bank lay the Necropolis or Tombs of the Kings and Queens, and a large number of mortuary temples, which included those of Dér-el-bahri, the Ramesseum, and Medinet Habou.

EGYPTIAN ARCHITECTURE.



8.

TEMPLE AT EDFOU.

Portico, showing light admitted over low screens between Columns.

The **Great Temple of Ammon, Karnac**, is the grandest, extending over an area of 1,200 feet by 360 feet, and originally was connected with the Temple of Luxor by an avenue of sphinxes. It was not built on an original plan, but owes its size, disposition and magnificence to the additions of many later kings, from the first monarchs of the twelfth dynasty down to the Ptolemaic period. It has six pylons added in successive generations, a great court measuring 338 feet by 275 feet, the great hypostyle hall, and other halls, courts and a sanctuary. The *Hypostyle hall* measures 338 feet by 170 feet, covering about the same area as Nôtre Dame, Paris. The roof is supported by 134 columns in sixteen rows. The central avenues are about 80 feet in height as compared with 140 feet at Amiens Cathedral, and have columns 69 feet high and $11\frac{3}{8}$ feet in diameter, the capitals of which are of the lotus blossom type (No. 10 L) so as to receive the light from the clerestory. The side avenues are about 46 feet high and have columns 42 feet 6 inches in height and 9 feet in diameter, the Capitals being of the lotus bud type, on which the clerestory light would fall. The impression produced on the spectator by the forest of columns is most awe-inspiring, and the eye is led from the smaller columns of the side avenues, which gradually vanish into semi-darkness, giving an idea of unlimited size, to the larger columns of the central avenues lighted by the clerestory, which is formed in the difference of height between the central and side avenues, a form of lighting more fully developed in the Gothic period. The walls of the hall, the column shafts, and the architraves are covered with incised inscriptions, still retaining their original colored decorations relating to the gods and personages concerned in the erection of the structure.

The **Temple of Sethos I., Abydos**, was dedicated to Osiris and other deities of Abydos. It was built by Sethos I. (B.C. 1366-1333), and completed by Rameses II. (B.C. 1333-1300). The walls are of fine grained limestone, and the reliefs on them are among the finest Egyptian sculptures. In common with other temples it has pylons, a first and second fore-court and two hypostyle halls, but instead of one sanctuary it has seven arranged side by side, dedicated to six deities and a deified king; hence the front of this temple was divided into seven parts, each with its separate gateway and portal. The seven sanctuaries are each roofed by means of horizontal courses, every course projecting beyond that immediately below, and the undersides afterwards rounded off in the form of a vault by the chisel. It further differs from others in having a wing at right angles to the main structure in consequence of a hill immediately behind the temple.

The **Great Temple of Abu-Simbel**, built by Rameses II. (B.C. 1333-1300), is one of the most stupendous creations of

Egyptian architecture, and was entirely excavated out of the solid rock. It has a fore-court, at the back of which is the imposing façade, 119 feet wide and over 100 feet high, formed as a pylon, and having four seated colossi of Rameses II., each over 65 feet in height. The entrance leads to a vestibule, the ceiling of which is supported by eight pillars, the walls having vividly colored reliefs. Eight smaller chambers, probably used to store the temple utensils and furniture, adjoin this vestibule, and in the rear is a small hypostyle hall, 36 feet by 25 feet, having four pillars. Behind this is a long narrow chamber out of which are three apartments, the centre and largest one being the sanctuary, with an altar and four seated figures of the deities worshipped.

The **Temple of Isis, Island of Philæ**, is an interesting example of the Ptolemaic period, and, like earlier examples, was the work of several generations. The fore-court, entered through a massive pylon, 150 feet broad and 60 feet high, has on the west side the Birth House, a small colonnaded temple dedicated to Hathor-Isis and to the memory of the birth of her son Horus, and on the east a colonnaded building used by the priests. On the fourth side of the court is the second pylon, which is 105 feet broad and 40 feet high. Beyond is the temple proper, consisting of courts, a hypostyle hall with eight columns, two small vestibules, a sanctuary, and other adjoining chambers, all nearly in total darkness. This group, including the second pylon, has its axis at an angle to that of the first pylon and courtyard. The entire structure has the walls, both inside and out, covered with inscriptions.

The **Temple of Hathor, Dendera** (A.D. first century), is another Ptolemaic example, but was not completed till the reign of Augustus. It has no pylons, fore-court, or enclosing outer walls, but has a great vestibule with twenty-four columns, six of which form the façade, having low screen walls between them on either side of the central entrance. Behind this is the hypostyle hall, having six columns with elaborate Hathor-headed capitals. On each side of this hall and beyond are chambers, used as lavatory, treasury, store-rooms; and behind are two ante-chambers with a sanctuary beyond. Staircases on either side lead to the roof of the temple.

During the Græco-Roman period many temples were erected, of which the **Temple of Edfou**, commenced by Ptolemy III. (B.C. 237), is the best preserved example. A massive pylon, faced with reliefs and inscriptions, gave access to a great court, surrounded by a colonnade. The back of this court was formed by the front of the great hypostyle hall, the portal of which was the centre intercolumniation of a row of six columns, the narrower spaces between the side columns having low screen walls (No. 8). Twelve larger columns with elaborate capitals support

EGYPTIAN ARCHITECTURE.



9.

AN EGYPTIAN HOUSE.

As erected at the Paris Exhibition, 1889, by M. Garnier.

the roof over this hall, beyond which was a smaller hypostyle hall, the roof of which was carried by twelve columns, having rich floral capitals, embellished by so-called heads of Hathor. Behind this were vestibules, smaller chambers, and the sanctuary.

OBELISKS

are monumental pillars, originally employed in pairs before the principal entrances of temples. They are monoliths, *i.e.*, single upright stones, square on plan with slightly rounded faces, and tapering sides, with a pyramidal summit. The height is usually about nine to ten times as great as the diameter, and the four faces were cut with hieroglyphics. The capping was of metal, for the groove into which it was fitted is in some cases still visible. The quarrying and transport of such a mass of stone without the power of a steam-engine was an engineering feat of considerable skill.

Many obelisks were removed from Egypt by the Roman emperors, and at least twelve are in Rome itself. That in the centre of the Piazza of S. John Lateran is the largest in existence. It is of red granite from Syene, and is 104 feet high, or with the pedestal 153 feet, 9 feet square at the base, 6 feet 2 inches at the top, and altogether weighs about 600 tons.

Cleopatra's Needle on the Thames Embankment, another example, brought to London from Alexandria, although originally erected at Heliopolis (B.C. 1500), is 68 feet 6 inches high, 8 feet square at the base, and weighs 180 tons.

DWELLINGS.

All these have disappeared, being only built of wood or of sun-dried bricks. Houses are shown on paintings and sculptures which have come down to us, from which they appear to have had one, two, or three stories.

In the absence of any authentic remains, an illustration of the Egyptian House is given (No. 9), conjecturally restored, and erected at the Paris Exhibition, 1889, by M. Charles Garnier. The design was founded on an ancient painting, and had a garden in front, laid out in a formal style, with fish-ponds. The house was divided by a corridor in the centre, giving access to the rooms. The staircase at the back led to a verandah, and also to a flat roof, extending over the whole length of the structure. The whole building was treated with color, the upper part of the house being painted a bright yellow, and the long external wooden columns blue.

4. COMPARATIVE.

A. Plans.—The temples have already been slightly compared with Greek examples (pages 15 and 22), and as already noticed they were especially planned for internal effect. The hypostyle hall seemingly unlimited in size, crowded with pillars, and mysteriously illuminated from above, realized the grandest conceptions of Egyptian planning (No. 5). Externally the massive pylons ornamented with incised decorations formed the chief façade, a contrast being obtained by the slender obelisks which usually stood in front of them, while the approach was through an impressive avenue of innumerable sphinxes.

The erection of these temples was in progress during many centuries by means of continual additions. In this respect they resemble the growth of English cathedrals; as also in the disregard for symmetry in the planning of one part in relation to another. This may be seen in many of the later temples erected under the Ptolemys, the temple on the island of Philæ being a notable instance. The walls, the pylons, and other features are placed on different axes, free from any pretence of regularity. The freedom and picturesqueness of grouping thus obtained is remarkable.

B. Walls.—These were immensely thick, and in important buildings were of granite, while in the less important they were of brick faced with granite.

The faces of the temple walls slope inwards or batter towards the top, giving them a massive appearance (No. 7). Viollet-le-Duc traces this inclination to the employment of mud for the walls of early buildings. Columns which form the leading features of Greek external architecture are not found on the exterior of Egyptian buildings, which have normally a massive blank wall crowned with a characteristic cornice, consisting of a large hollow and roll moulding (No. 10 J, M). For the purposes of decoration, the walls, even when of granite, were generally covered with a fine plaster, in which were executed low reliefs, treated with bright color (Nos. 7 and 10 P). Simplicity, solidity, and grandeur, qualities obtained by broad masses of unbroken walling, are the chief characteristics of the style.

C. Openings.—These were all square-headed and covered with massive lintels, for the style being essentially trabeated, the arch appears to have been but little used. Window openings are seldom found in temples, light being admitted by the clerestories in the earlier examples at Thebes, or over the low dwarf walls between the columns of the front row, as at Luxor, Edfou (No. 8), Dendera, or Philæ, a method peculiar to the Ptolemaic and Roman periods.

D. Roofs.—These were composed of massive blocks of stone supported by the enclosing walls and the closely spaced columns

(No. 5 F). Being flat, they could be used in dwelling-houses (No. 9) as a pleasant rendezvous for the family in the evening for the enjoyment of the view and the fresh breezes which spring up at sunset, and at certain seasons may have been used for repose. They may also have been used in the daytime, if protected from the sun by temporary awnings. The flat roofs of the temples seem to have been used in the priestly processions. In the rock-cut temples the ceilings are sometimes slightly arched in form, and as at the tombs at Beni-Hasân, the roofing is made to represent timber construction (No. 6).

E. Columns.—The papyrus, a tall, smooth reed, and the lotus, a large white water-lily of exquisite beauty, offered many suggestions. The columns, seldom over six diameters in height, were made to represent the stalks, and at intervals appear to be tied by bands (No. 10). The capitals were mostly derived from the lotus plant (No. 10 D, E, F), as follows:—

- (a.) The lotus bud, conventionalized, tied round by stalks (No. 10 M).
- (b.) The fully-grown lotus flower, which formed a bell-shaped capital, sculptured or ornamented with color decoration (No. 10 L).
- (c.) The "palm" capital, the main outline of the palms being painted or sculptured (No. 10 K).

In addition, the Isis or Hathor-headed capital, as at Dendera and Philæ, is formed of heads of the goddess Isis, supporting the model of a pylon (No. 10 G).

F. Mouldings.—These were few, viz., the hollow and bead generally used in conjunction, but the bead was also used by itself. The two combined invariably crowned the upper part of the pylons (Nos. 7 and 10 J, M), and walls.

G. Ornament (No. 10).—This was symbolical, and was an important element in the style, including such features as the solar disc or globe and the vulture with outspread wings (No. 10 N), as a symbol of protection, while diaper patterns, spirals (No. 10 A, B) and the feather ornament (No. 10 C) were largely used. The scarab, or sacred beetle, was considered by the Egyptians as the sign of their religion, much in the same way as the cross became the symbol of Christianity. It probably attained its sacred character as the emblem of resurrection because of its habit of allowing the sun to hatch its eggs from a pellet of refuse. It must be remembered that the decoration of the walls of a temple consisted largely in acts of adoration on the part of the monarch to his gods, to whose protection he ascribed all his warlike successes. The Egyptians were masters in the use of color, chiefly using the primary ones—blue, red, and yellow. The wall to be decorated was prepared as follows: (a) It was first chiselled smooth and covered with a thin layer of plaster or cement,

after which a colored wash was put over the whole. (b) The figures or hieroglyphics were then drawn on with a red line by an artist, being corrected with a black line by the chief artist; (c) the sculptor next incised the outline, rounding slightly the inclosed form towards its boundaries; (d) the painter then executed his work in the strong hues of the primary colors. (See the Egyptian Court at the Crystal Palace.) The hieroglyphics were often, however, incised direct on the granite and then colored, as may be seen on the sculptures at the British Museum. They are instructive as well as decorative, and from them is learnt most of what is known of Egyptian history (No. 10 p).

The Egyptians possessed great power of conventionalizing natural objects such as the lotus plant, the symbol of fertility and abundance, produced by the overflowing Nile, the palm, the papyrus, and others, each being copied as the *motif* for a design, being treated by the artists in a way suitable to the material in which they were working. The distinguishing, or essential, feature of the natural object, or its class, thus passed by a process of idealizing into forms adapted for ornamentation.

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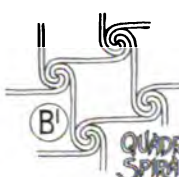
The Egyptian Court at the Crystal Palace and the Egyptian Rooms at the British Museum give a good idea of the Architecture and decoration of the style. The latter place contains a most complete collection of Egyptian antiquities, which will give the student a better knowledge of the style than can be gleaned merely from books.

EGYPT- IAN ORN- AMENT

FROM PERROT
& CHIFFRE, PIERRE & C.

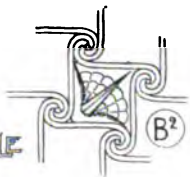


(A) CONTINUOUS
OF SPIRAL



(B)

QUADRUPLE
SPIRALS



(B²)



(C) FEATHER
ORNT



(D) LOTUS
FLOWER



(E) LOTUS
FLOWER



(F) LOTUS
BUD



(G) HATHOR HEAD
CAPITAL PHOEBE



(L) COLUMN FROM THE
CREAT HALL AT
KARNAC

(J)



EGYPTIAN ROLL
& BEAD



ORNT OF
THOTHES II
KARNAC

(M)



PLA CAPITAL (K)



(H)



(N)

A VULTURE WITH OUT -
STRETCHED WINGS &
A SYMBOL OF PROTECTION



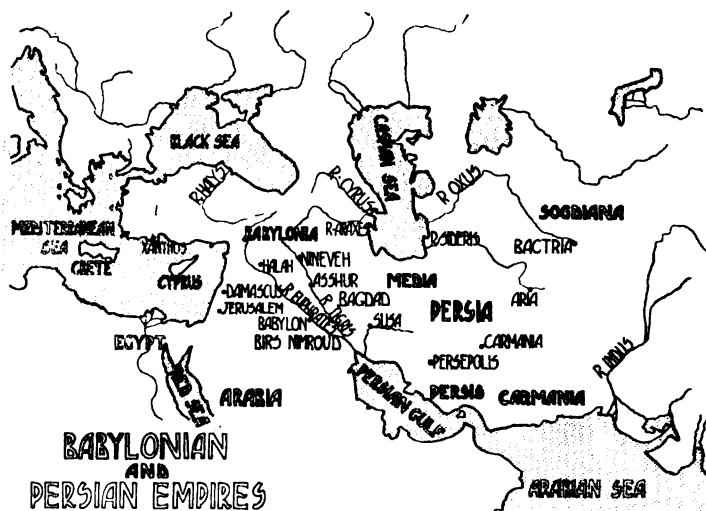
(O)

A SPHINX IN GRANITE



(P)

INCISED WALL DECORATION



II.

WESTERN ASIATIC ARCHITECTURE.

“Babylon,
Learned and wise, hath perished utterly,
Nor leaves her speech one word to aid the sigh
That would lament her.”—WORDSWORTH.

I. INFLUENCES.

i. **Geographical.**—On referring to the map (No. 11) it will be seen that the principal ancient cities of Western Asia were situated in the valley of the twin-rivers Tigris and Euphrates. The district was one of the earliest seats of civilization, being celebrated for its great fertility, and has been styled the cradle and tomb of nations and empires. The plain of Mesopotamia, once the seat of a high civilization, was irrigated by numerous canals between the above-mentioned rivers, and was highly cultivated, supporting an immense population round Nineveh and Babylon.

The earliest known buildings appear to have been erected at the mouth of the great rivers draining the country, and in this respect can be compared with Egypt (No. 3), where the

Pyramids and other early structures were near the delta of the Nile. In Western Asia the march of civilization spread northwards from Babylon (the Gate of God) to Nineveh, while in Egypt it spread southwards from Memphis to Philæ, but in both cases it developed from the sea inland.

ii. **Geological.**—The whole district of Chaldæa or Lower Mesopotamia is alluvial, being formed of the thick mud or clay deposited by the two great rivers Tigris and Euphrates. The soil, containing no stone and bearing no trees, could be made into bricks, which thus became the usual building material. The general body of the walls was constructed of the ordinary sun-dried bricks, while "kiln-burnt" and sometimes glazed or vitrified bricks of different colors were used as a facing. As a cementing material, bitumen or pitch, applied in a heated state, seems to have been used, being obtained from bitumen springs found in the district, as at Is, on the Euphrates. Mortar, made of calcareous earth, was used in the latest periods.

In Assyria, where stone was not scarce, the walls were also faced, internally and externally, with alabaster or limestone slabs, on which were carved the bas-reliefs or inscriptions, which are so important from an historical point of view.

iii. **Climate.**—The unhealthy exhalations from the vast swamps in Chaldæa, and the swarms of aggressive and venomous insects infesting the entire region during the long summer, rendered the construction of elevated platforms for the towns and palaces not only desirable, but almost essential. Moreover, the floods during the rainy season, when torrents fell for weeks at a time, further demanded the need for such structures.

Persia is for the most part a high tableland and has been described as a country of sunshine, gardens, and deserts, with a climate ranging from the extremes of heat and cold.

iv. **Religion.**—The people were worshippers of the heavenly bodies, such as the sun and the moon, and of the powers of nature, such as the wind and thunder. Numbers of omen tablets have survived, and bear witness to the extreme superstition which existed.

Ormuzd, the god of light and of good, as opposed to Ahriman, the god of darkness and evil, was worshipped with fire as his symbol. Temples, and even images, do not seem to have been necessary, as sacrifices and the worship of fire and sun appear to have been conducted in the open air, and thus the essential stimulus was wanting for the rise and development of religious art. On the other hand, the man-headed bulls, placed at the entrances of temples and palaces, probably had a mythical meaning, and appear to belong to the class of beneficent genii or to that of the great deities of the Chaldæan pantheon.

v. **Social and Political.**—Judging from their history, the

Assyrians were a sturdy, warlike, but cruel people, and in their battles the conquering monarchs took thousands of prisoners, who were employed in raising the enormous mounds mentioned hereafter. It has been calculated by Rawlinson that the erection of the great platform or mound of Koyunjik—upon which the buildings of Nineveh stood—would require the united exertions of 10,000 men for twelve years, after which the palaces would have to be built.

The Assyrian sculptures give in a very minute way the social conditions of the period, and show us the costumes of the time and the military character of the period, for the long inscriptions and series of pictures with which the palace walls were covered form an illustrated history of the battles and sieges of succeeding monarchs, the sculptor thus explaining the political events of the period in a lasting manner.

The cuneiform or wedge-shaped characters which form the inscriptions consist of groups of strokes placed in different positions. These characters were impressed on clay tablets or cylinders, while still moist, with a triangular ended instrument of wood, bone, or metal. Libraries of these strange MSS. were formed on a large scale, and by the translation of these inscriptions much knowledge of the social condition has been acquired.

The Persian astronomer-poet, Omar Khayyám, in his writings, indicates the national love of beauty and the influence exerted by environment and climate.

vi. Historical.—From the study of Assyrian history can be gleaned certain facts which considerably assist in forming the divisions of the periods. The earliest Babylonian king mentioned in the cuneiform inscriptions was Eannadu, who reigned B.C. 4500, and the empire he founded was gradually extended northwards, following the course of the great river Tigris. In B.C. 1700 Assyria, the northern part of the early Babylonian empire, asserted her independence and became the great power of Western Asia.

Of the Assyrian kings, the most celebrated was Sargon (B.C. 722-705), who erected the great palace at Khorsabad; he was the first Assyrian king who came in contact with the Egyptian army, then in alliance with the Philistines, a combination of forces which he defeated. The Assyrians conquered and occupied Egypt in B.C. 672, sacking the ancient city of Thebes in B.C. 666; but the Egyptians finally shook themselves free from the Assyrian yoke. The destruction of Nineveh took place in B.C. 609, and the great Assyrian kingdom was then divided among its conquerors, Assyria being handed over to the Medes. Babylon then took the leading place until it was finally conquered by the Persians, a hardy race from the mountainous district north of the Persian Gulf, under Cyrus, in B.C. 539. The reigns of Darius (B.C. 521-485), and Xerxes (B.C. 485-465) are important as being

those in which some of the most interesting palaces were erected at Susa and Persepolis. The country remained under the rule of the Persians until the time of Alexander the Great, B.C. 333, when it became a possession of the Greeks. The conquest of Egypt by Cambyses, B.C. 525, and the dazzling impression left by the marvellous buildings of Memphis and Thebes, caused the development of the use of the column amongst the Persians. In the seventh century A.D., the Arabs overran the country and settled there — Bagdad becoming a new capital of great magnificence. Towards the close of the tenth century, the Turks, a barbarous people pouring in from the east, settled in the country, which is at the present moment in a desolate state owing to Turkish misrule.

2. ARCHITECTURAL CHARACTER.

The banks of the Tigris and Euphrates presented only alluvial plains, where wood suitable for building was rare. The country, however, possessed an abundance of clay, which, being compressed in flat square moulds and dried in the sun, was the material of which were formed the huge platforms upon which temples and palaces were built. These immense platforms were at first faced with sun-dried bricks, and subsequently with kiln-burnt bricks, or in the later Assyrian period with stone slabs from the mountains that separate Assyria from Media. It will be perceived how the salient characteristics of the architecture may be explained by the nature of the materials at hand, for the walls being of brick, each unit, in general, was a repetition of its neighbour, and rarely of special shape. The buildings thus constructed could only be decorated by attached ornament, similar in principle to the mats and hangings spread over floors or walls as a covering, for the Assyrians either cased their walls with alabaster or with a skin of glazed brickwork of many colors.

The arch was applied to important openings (No. 12) and also to vaults. In some cases it was not a true arch, but one formed by corbelling or projecting horizontal courses. The true arch however was also practised, being probably accidentally hit upon through the use of small units; for as the Chaldæans were unable to support walls over openings upon beams of stone or timber, owing to the lack of these materials in suitable forms, they had to devise some other means for doing so. It is a general law, which study and comparison will confirm, that the arch was earliest discovered and most invariably employed by those builders who found themselves condemned by the geological formation of their country to the employment of the smallest units.

Arches, therefore, in the absence of piers, rested on thick and

solid walls; and whether used for the formation of vaulted drains under the immense platforms, or to form imposing entrances of colored and glazed brickwork in elaborate façades, held a space of extreme importance in the style.

In Chaldæa, isolated supports, such as are found in the hypostyle halls of Egypt and Persia, or in Greek temples and Latin basilicas, were not used, for the want of suitable stone rendered any such arrangement impossible. The Chaldæans and Assyrians scarcely ever used stone constructively except as the envelope for a brick wall; but on the other hand as stone was abundant in the rocky country of Persia, the Persians used it for walls and columns at Susa and Persepolis. Assyria undoubtedly gave many of her architectural forms to Persia, who later borrowed much from Egypt and Asiatic Greece.

The bracket and scroll capitals of the columns at Persepolis and Susa retain much of the form of their wooden prototypes, and demonstrate very clearly that a form which, applied to wood, is natural and inoffensive, becomes inappropriate when applied to stone (No. 13 A, C, G).

Texier's description of the great mosque at Ispahan might, it is believed, be applied with general accuracy to the palaces of Nineveh and Persepolis, if the power of a Merlin could bring them back to our view: "Every part of the building, without exception, is covered with enamelled bricks. Their ground is blue, upon which elegant flowers and sentences taken from the Koran are traced in white. The cupola is blue decorated with shields and arabesques. One can hardly imagine the effect produced by such a building on an European accustomed to the dull uniformity of our colorless buildings." The palaces would differ principally from the description of this mosque owing to the rules of the Koran as to the prohibition in sculpture and decoration of the copying of natural objects (page 654).

The appearance of the monuments must, however, be entirely left to the imagination, for the effect of the towering masses of the palaces, planted on the great platforms, and approached from the plains by broad stairways, can only be imagined. The portal, flanked by colossal winged bulls (Nos. 12 B, F, G, H, and 13 D, E), led to an audience-chamber paved with carved slabs of alabaster. This apartment had a dado, 12 feet high, of sculptured slabs, with representations of battles and hunting scenes (No. 13 F, H), and was surmounted by a frieze containing figures of men and animals in glazed and brightly colored brickwork; a beamed roof of cedar, through which small openings gave a sufficient illumination, probably covered the apartment (No. 12 B).

At Khorsabad an ornamentation of semi-cylinders in juxtaposition was employed externally, a style of decoration which

is a last reminiscence of the timber stockading which had originally served to keep up the tempered earth before the regular use of sun-dried bricks.

In Asia Minor many of the buildings present stone forms borrowed from a timber type, and the influence of this tradition is better seen in the tombs of Lycia than in any other remains. An example of one of these at the British Museum has a double podium (*cf.* Glossary) upon which is placed a chest or sarcophagus crowned with a roof of pointed-arch form, the mortises and framing, including the pins, being copied from a wooden form. In Lycia many rock-cut tombs present flat and sloping roofs, in which unhewn timbers were copied; and the last stage shows an Ionic façade certainly developed from these carpentry forms (No. 41 F).

The copying of timber forms in stone has also been traced in Egypt; in India, where it was introduced by the Bactrian Greeks, between the second and third century B.C., and in Greece somewhat earlier than in Lycia, in the seventh century B.C. It may, therefore, be admitted that a material from which a style is evolved continues for a period to have its influence even when another material is substituted. It was only, however, in the infancy of stone architecture that timber forms were adhered to; for as soon as habit gave familiarity with the new material, the incongruities of such forms applied to stone structures were by degrees abandoned, and features suitable to the new material were evolved.

3. EXAMPLES.

Western Asiatic Architecture can be divided into three tolerably distinct periods:—

- (a.) The first or Babylonian (Chaldæan) period (B.C. 4000(?)–1290).
- (b.) The second or Assyrian period (B.C. 1290–538).
- (c.) The third or Persian period (B.C. 538–333).

THE FIRST OR BABYLONIAN PERIOD

was a *temple-building* epoch, the principal remains being the temple of Birs-Nimroud near Babylon, and the temple at Khorsabad.

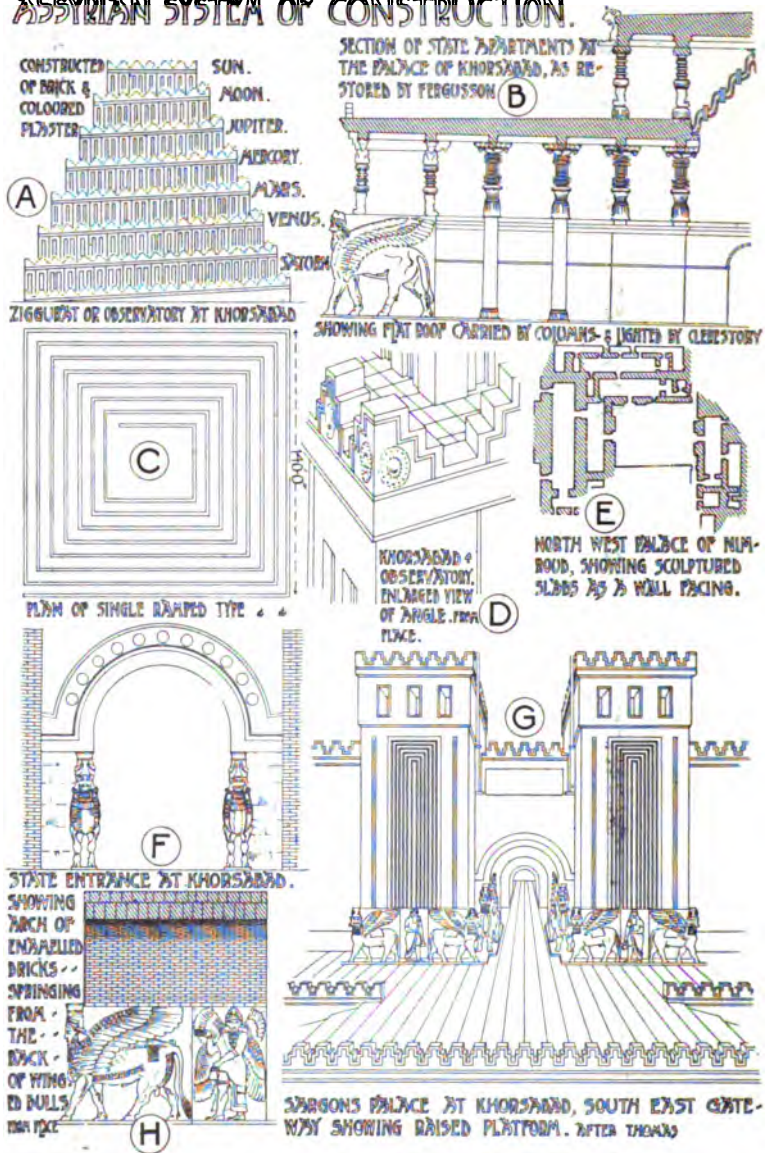
Colonel Rawlinson has shown by his investigations that the **Temple of Birs-Nimroud** was dedicated to the seven heavenly spheres.

In Chaldæa every city had its “ziggurat” (holy mountain), surmounted by a richly decorated temple chamber, which served as a shrine and observatory from which astrological studies could be made (No. 12 A, C, D).

These temples were several stories in height, constructed in

ASSYRIAN EXAMPLES.

ASSYRIAN SYSTEM OF CONSTRUCTION.



receding terraces, and each of different colored glazed bricks. A walled inclosure surrounded the whole structure. The angles of these temples were made to face the cardinal points, in contrast to the Egyptian pyramids, whose sides were so placed.

The attempts of the Babylonians to build a tower which should "reach to heaven" (Gen. xi. 4), may be referred to here, and it is a fact worth noting that in Western Asia and Egypt, countries both remarkable for their dulness and sameness of aspect, man should have attempted his highest flights of audacity in the way of artificial elevations.

THE SECOND OR ASSYRIAN PERIOD

was a *palace-building* epoch, and terminated with the destruction of Babylon by Cyrus, B.C. 539.

The principal remains are the palaces at Nineveh (or Koyunjik), Nimroud, and Khorsabad.

The **Palace of Sargon, Khorsabad** (B.C. 722-705), is the best example of the general type, and has been the most completely studied by means of systematic excavations, chiefly by Place. It was erected about nine miles north-north-east of the ancient city of Nineveh, and with its various courts, chambers, and corridors is supposed to have occupied an area of 25 acres. As in all Assyrian palaces, it was raised upon a terrace or platform of brickwork faced with stone, 46 feet above the plain, from which it was reached by means of broad stairways and sloping planes or ramps. The palace contained three distinct groups of apartments, corresponding to the divisions of any palatial residence of modern Persia, Turkey, or India, viz. :—(a.) The Seraglio, including the palace proper, the men's apartments, and the reception rooms for visitors, in all containing 10 courts, and no less than 60 rooms or passages; (b.) the Harem, with the private apartments of the prince and his family; and (c.) the Khan or service chambers, arranged round an immense courtyard, having an area of about 2½ acres, and forming the principal court of the palace. There was also a temple observatory on the western side of the platform. The great entrance portals on the south-east façade led into the great court already mentioned. These portals formed probably the most impressive creations of Assyrian Architecture, and were rendered imposing by no fewer than ten human-headed winged bulls, 19 feet in height (No. 12 F, G, H), examples of which are now preserved in the British Museum. In the principal apartments a sculptured dado of alabaster about 10 feet high, which seems to have been sometimes treated with color, lined the lower portions of the walls, above which was a continuous frieze of colored and glazed brickwork. Conjectural restorations have been made by various authorities (No. 12 B).

The excavations of the **Palace of Sennacherib, Nineveh**, B.C. 705-681, and the **Palace of Ashur-nasir-pal, Nimroud**, B.C. 885-860 have revealed a large amount of information concerning Assyrian Palaces, and many of the sculptures with which the walls were lined are now in the British Museum.

The method of roofing is still much in dispute. Some authorities hold that the long and narrow rooms were roofed with beams of poplar or palm, resting upon the summits of the walls, and that the large halls would have a central portion open to the sky, with porticos around, similar to that of a Roman atrium. Other authorities hold that the arch, which was used largely in the drains and water channels of the great platforms and in the city gates (No. 12 F), also played an important part in the construction of the palaces themselves, specially in view of the thickness of the walls, which would indicate that the architect had to provide solid abutments for arched vaults which supported a heavy roof. From a bas-relief found by Layard, it would appear that domed roofs both spherical and elliptical were also employed.

THE THIRD OR PERSIAN PERIOD,

from the time of Cyrus to that of Alexander the Great, has important remains of palaces, tombs and temples, at Susa, Persepolis, and Passagardæ.

The Persians having no architecture of their own, proceeded to adapt that of the conquered Assyrians, as later the Romans assimilated that of the Greeks.

In the neighbourhood of their new cities, Susa and Persepolis, good stone was to be found, and, as a consequence, many architectural features, which are wanting in the earlier periods, are still extant.

Persepolis, one of the important capitals of Persia, has interesting remains of no less than eight different buildings. These were erected on a great platform, 1,500 feet long by 1,000 feet wide, of four different levels, partly cut out of the solid rock and partly built up. It was from 20 to 50 feet above the plain and was reached by a wide stairway on the western side. The most important buildings erected by Darius are his Palace and the Hall of the Hundred Columns, while his son Xerxes built the Propylæa, the Hypostyle Hall and a famous palace. The **Hall of the Hundred Columns**, 225 feet square, was probably used as an audience and throne-hall. It was surrounded by a brick wall, 10 feet 8 inches thick, in which were forty-four stone doorways and windows. The bas-reliefs are on a magnificent scale, representing the king surrounded by the arms of subject states, receiving ambassadors, rows of warriors and other subjects. The columns, of which only one is still in situ, had capitals of curious vertical

Ionic-like scrolls (No. 13 c), or of the double-bull or double-horse types (No. 13 A, c). The **Hypostyle Hall of Xerxes** (B.C. 485), probably used as a throne room, and having no enclosing walls, occupied an area larger than the Hypostyle Hall at Karnac, or any Gothic cathedral except Milan. It originally had seventy-two black marble columns, 67 feet in height, arranged in a somewhat novel manner supporting a flat roof. Of these only seventeen now exist, and have capitals either of brackets and volutes, or formed of a pair of unicorns or bulls; the bases are bell-shaped (No. 13 A, c, g) and the shafts are fluted with fifty-two flutes.

Susa has important remains in the palaces of Xerxes and Artaxerxes, from which splendid examples of colored and glazed brickwork have been excavated, especially the frieze of lions and the frieze of archers in which the figures, about 5 feet high, are now in the Louvre, Paris, and give a good idea of the glazed and colored work of the Persians.

The **Tomb of Darius, Naksh-i-Rustam**, near Persepolis, has a rock cut façade, reproducing the Palace of Darius, and forming one of four rock-hewn sepulchres of the Akhæmenian kings. In this façade the columns are of the double-bull type with cornice over, above which are two rows of figures supporting a prayer platform, upon which stood a statue of the king, about 7 feet high, with his arm uplifted towards an image of the god Ormuzd.

Jewish Architecture.—The Hebrews apparently borrowed their architectural forms from Egyptian, Assyrian, Greek and Roman sources. Remains are unimportant, consisting principally of tombs in the valleys near Jerusalem.

The only great attempt at a monumental structure was the *Temple* at Jerusalem. This was commenced by Solomon (B.C. 1012), and the biblical description (1 Kings vi., vii., 2 Chronicles iii., iv.) is interesting, portraying entrance pylons, courts, cedar woodwork, metal work, and the isolated brazen columns Jachin and Boaz. The Temple was afterwards added to by Herod (B.C. 18), and the site is now occupied by the Mosque of Omar. (Page 659.)

4. COMPARATIVE.

A. Plan.—A special character was given to the temples of the early, and the palaces of the later period, by raising them on terraces or platforms some 30 feet to 50 feet in height (No. 12 c), and by grouping the buildings round quadrangles. Whereas the sides of the Egyptian pyramids face the cardinal points of the compass, the angles of the Assyrian ziggurats were so placed. Egyptian temples were designed mainly for internal effect, while Assyrian palaces were designed so as to be effective internally and externally, being raised on the platforms mentioned above.

B. Walls.—The Assyrians in the early period used stone only as a facing to their brick walls, forming a contrast with the solid marble work of the Greeks, and with the constructive use of stone and granite by the Egyptians.

In Assyria, the massive walls, which were of cased brickwork, only remain, the columns being of wood having perished. In Persia, however, the walls which were thin have disappeared, leaving the massive stone or marble blocks forming the door and window openings, immense columns, and broad stairways which alone have survived the ravages of time.

The slabs of alabaster with which the walls of the palaces were faced reveal much of the social history of the people, and many of the slabs are now in the British Museum (No. 13).

C. Openings.—The lighting to the temples is conjectural, but it appears to have been effected by means of a "clerestory" (No. 12 B), somewhat similar to that in use in the Egyptian temples.

It is believed that the Assyrian architects counted chiefly on the doorways, which were of great size, to give their buildings a sufficient supply of light and air, and openings may also have been formed in the upper parts of the walls.

The use of the arch, both circular and pointed, was practised by the Assyrians, as is proved by the discoveries of Sir Henry Layard at Nimroud, and of M. Place at Khorsabad (No. 12 F, G, H), where semi-circular arches spring from the backs of winged bulls with human heads.

D. Roofs.—The roofing appears to have been effected by means of timber beams reaching from one column to the next, and resting on the backs of the "double-bull" capitals (No. 12 B).

Some authorities consider that the halls of the palaces were covered with brick tunnel vaults, but in many cases the roof of considerable thickness was flat, formed of very tough but plastic clay and debris, and kept in condition by being occasionally rolled, as in modern eastern houses. Perrot and Chipiez, however, are of opinion that Assyrian builders made use of domes in addition to barrel vaults, because of the discovery of a bas-relief at Koyunjik in which groups of buildings roofed with spherical or elliptical domes are shown. Strabo (xvi. i. 5) also mentions expressly that all the houses of Babylon were vaulted.

E. Columns.—These were primarily of wood, but in the later period at Persepolis, the Persians, on their return from Egypt, built them of the natural stone which had been wanting in Chaldæa. They were not so massive as in Egypt, where stone roofs had to be supported.

The capitals were characteristic, being of the "double-bull," "double-unicorn," "double-horse" or "double-griffen" type (No. 13 A, c), and the Ionic scroll occurs in some examples.

F. Mouldings.—As in the case of Egypt, in Western Asia

the use of mouldings does not appear to have advanced to any great extent. In the Assyrian palaces the sculptured slabs and colored surfaces took their place. At Persepolis the bead, hollow and ogee mouldings may be noticed in the bases, while the volutes of the capital were treated with plain sinkings.

g. Ornament.—The Assyrian sculptures in alabaster exhibit considerable technical skill and refinement, while the repoussé pattern work on bronze bowls, shields, and gate fittings is also notable. From the decorative treatment of Assyrian architecture can be traced much of the peculiar and characteristic detail used by the Greeks, and on the sculptured slabs (No. 13 B, F. H), already mentioned at Nimroud and Nineveh, are represented buildings with columns and capitals of Ionic and Corinthian form in embryo.

Further, it may be said, that Greece took from Assyria the idea of the sculptured friezes, the colored decorations, and the honeysuckle (No. 12 j) and guilloche ornaments, the latter being seen in a pavement slab from the palace at Nineveh (Koyunjik), now in the British Museum.

In the next chapter it will be seen that Greece adopted much of her decorative art from the preceding styles of Egypt and Western Asia, which are thus of extreme interest in enabling the evolution of architectural forms from the earlier periods to be traced.

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A visit to the Assyrian galleries and basement of the British Museum will afford much interest and information to the student and will impress him with the dignity and importance of the style.



GREECE

14.

GREEK ARCHITECTURE.

“ Fair Greece ! sad relic of departed worth !
Immortal, though no more ; though fallen, great ! ”—BYRON.

“ An! downward thence to latest days
The heritage of beauty fell ;
And Grecian forms and Grecian lays
Prolonged their humanising spell,
Till when new worlds for man to win
The Atlantic riven waves disclose,
The wildernesses there begin
To blossom with the Grecian rose.”—LORD HOUGHTON.

I. INFLUENCES.

i. **Geographical.**—A reference to the map of Greece (No. 14) shows a country surrounded on three sides by the sea, possessed of many natural harbours, and convenient for the development of trade. By means of these havens the Phœnician merchants in early times carried on commerce with the country. The influence of the sea in fostering national activity should not be forgotten—an influence to which Great Britain owes her present position. Again, the mountainous character of the country, with scarcely a road until Roman times, was calculated to isolate the inhabitants into small groups, and together with the tempting proximity of a whole multitude of islands, was instrumental in producing a hardy and adventurous people, who might be expected to make good colonists.

ii. **Geological.**—In Greece the principal mineral product was marble, the most monumental building material in existence, and one which favours purity of line and refinement in detail. This material is found in great abundance in various parts of Greece, e.g., in the mountains of Hymettus and Pentelicus, a few miles

from Athens, and in the islands of Paros and Naxos. In the effort to obtain refinement of line and smoothness of surface where crude bricks were used, they were in many cases coated with a fine cement formed of marble dust and lime; where stone was employed, as at Pæstum and elsewhere, it appears also to have been coated with this marble cement, while marble itself was often treated in the same way, the cement being susceptible of a higher polish than the uncemented surface. The country was also rich in silver, copper, and iron.

iii. Climate.—The climate of Greece is remarkable for the hot sun and the heavy rains, factors probably answerable for the porticos which were important features of the temples.

Greece enjoyed a position intermediate between the rigorous surroundings of the Northern nations and the relaxing conditions of Eastern life. Hence the Greek character combined the activity of the North with the passivity of the East in a way that conduced to the growth of a unique civilization.

iv. Religion.—The Greek religion was in the main a worship of natural phenomena (nature-worship, major and minor), of which the gods were personifications. There are, however, numerous traces of ancestor-worship, fetishism, and other primitive forms of religion. It should be borne in mind that Greek cults were always local, each town or district having its own divinities, ceremonies, and traditions. The priests had to perform their appointed rites, but were not an exclusive class, and often served only for a period, retiring afterwards into private life. Both men and women officiated, and a small bright "cella" took the place of the mysterious halls of the priest-ridden Egyptians (page 20).

The principal deities of the Greeks with their Roman names are as follows:—

<i>Greek.</i>		<i>Roman.</i>
Zeus.....	Chief of the gods and supreme ruler	Jupiter (Jove).
Hera	Wife of Zeus and goddess of marriage	Junó.
Apollo	{ The son of Zeus and father of Æsculapius. The god who pun- ishes, heals and helps. Also the god of song and music, of the sun, and founder of cities.	Apollo.
Hestia	Hearth (sacred fire)	Vesta.
Heracles	Strength, power.....	Hercules.
Athena	{ Wisdom, power, peace, and pros- perity	Minerva.
Poseidon	Sea	Neptune.
Dionysos	Wine, feasting, revelry.....	Bacchus.
Demeter	Earth, agriculture.....	Ceres.
Artemis	Hunting (goddess of the chase)	Diana.
Hermes	{ Herald or messenger of the gods, therefore eloquence with winged feet	Mercury.
Aphrodite	Beauty ..	Venus.
Nikè	Victory.....	Victoria.

v. Social and Political.—The early inhabitants were known to the ancients under the name of Pelasgi. Their civilization belonged to the bronze age, as is evident from the remains of it found at different points round the Ægean sea, *viz.*, in Crete, at Hissarlik in the Troad, at Mycenæ, Tiryns, and elsewhere. It fell before the iron weapons and greater courage of invaders from the North, *viz.*, the Achæans or Homeric Greeks. The war against Troy affords proof of an early connection of the inhabitants of Greece with Asia. The Achæans in their turn succumbed to a fresh influx of invaders from the North, hardy mountaineers called Dorians, who established themselves at Sparta and elsewhere in the Peloponnese. In classical times the land was peopled by Ionians (*i.e.*, the old Pelasgic population), Æolians (*i.e.*, descendants of the Achæans), and Dorians. Dorian Sparta and Ionian (Pelasgian) Athens are the two principal factors in the drama of Greece. It was not till some 500 years after the fall of Troy that the new Hellenic civilization was evinced in the construction of the Temple of Corinth (B.C. 650), one of the earliest Doric temples known.

As regards the people themselves, it is clear that the national games and religious festivals united them in reverence for their religion, and gave them that love for music, the drama, and the fine arts, and that emulation in manly sports and contests for which they were distinguished. It should be remembered that the people led an open-air life, for the public ceremonies and in many cases the administration of justice were carried on in the open air.

The Greeks, as already indicated, were great colonists, and emigration, especially to the coast of Asia Minor and the Mediterranean, was a government measure dating from about B.C. 700, undertaken not only to establish trade, but also to reduce the superfluous population, and to provide an outlet for party strife. It thus came about that the colonies were often peopled with citizens of a more energetic and go-ahead character than those of the mother country; and it will therefore be found that many of the important buildings of Greek architecture, especially in the Ionic style, are in their colonies of Asia Minor, and that this connection with the East had some influence upon their architecture.

vi. Historical.—The poems of Homer, apparently a Pelasgic bard who sang for Achæan masters, give a picture of Greek life about the twelfth century B.C. Whether or no the war with Troy be an actual fact, the incidents related have a substratum of truth, and the tale probably arose out of the early conflicts of the Greeks in north-west Asia. The Hesiodic poems, *circa* B.C. 750, depict the gloomy prospects and sordid life of the Bœotian peasantry at a time when art was almost in abeyance. For the

fourth and fifth centuries B.C. there are the more or less critical histories of Herodotus, Thucydides, Xenophon, and others. The cities of Greece had by this time settled down in their several forms of government—tyrannic, aristocratic, or democratic—and most of their colonies had been founded. The Persians under Cyrus, having captured Sardis, overthrew the kingdom of Lydia; whereupon the Greeks of Asia Minor became subject to Persia. It was the revolt of these Ionians in B.C. 499-493 which led to the Persian wars. The first great Persian invasion resulted in the victory of the Greeks at the battle of Marathon, B.C. 490; and the second invasion by Xerxes terminated in the naval victory of Salamis (B.C. 480). National exaltation caused by the defeats of the Persians is largely responsible for the fact that all the important temples now found in Greece were built in the "fifty years" which succeeded the battles of Salamis and Plataea. The wonderfully rapid growth of Athens excited the jealousy of the slower Spartans, and the Peloponnesian war, which followed, lasted from B.C. 431 to 404. The rule of Pericles (B.C. 444-429) marks the climax of Athenian prosperity. The Peloponnesian war left Sparta the chief power in Greece; but her arbitrary and high-handed conduct roused other states against her, and the supremacy passed successively to Thebes and Macedonia. The latter had hitherto been considered a half-barbarian state; but thanks to the ability of Philip King of Macedonia and of his son Alexander the Great, it rose to a leading position in Greece. In B.C. 334 Alexander set out on his great expedition, and in six years he subdued the Persian Empire, having besieged and taken Tyre *en route* and received the submission of Egypt, where he founded and gave his name to the famous city of Alexandria. His conquests extended to Northern India, and the effect of these was most important, for Hellenic civilization was thus introduced far and wide throughout Asia. On his death at Babylon in B.C. 323, the empire he had created was split up among his Generals, Egypt falling to the share of Ptolemy, who founded a dynasty (page 12). In Greece itself the formation of leagues, as the Achæan and Ætolian, between cities was attempted; but the Roman interference had commenced, and gradually increased until in B.C. 146 Greece became a Roman province. The isolation and mutual animosity of the Greek communities afforded all too good an opportunity for the intrusion of the better-centralized and more united power of Rome. *En revanche*, where arts not arms were concerned,

"Græcia capta ferum victorem cepit et artes
Intulit agresti Latio."

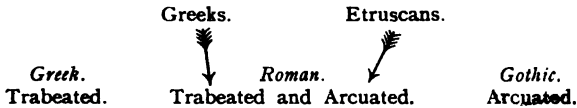
2. ARCHITECTURAL CHARACTER.

Much as Greek culture owed to the preceding Oriental civilizations, still the change effected by the Greeks has so profoundly influenced the development of European progress that Greece must be regarded as the veritable source of literary and artistic inspiration. As a recent writer puts it, "Whate'er we hold of beauty, half is hers." Greek architecture stands alone in being accepted as beyond criticism, and as being an obligatory study for students of otherwise very different principles.

The character of the early or Mycenæan period, also known as the Pelasgic, Cyclopean or Primitive period, is very different from the later or Hellenic period, and, as mentioned on page 53, consists of rough walling of large blocks of stone, often unworked. In this period the Greeks often had recourse to the corbel system, to inclined blocks over openings, and even to the true arch.

The Hellenic Period which followed the Mycenæan is dealt with specially here because it is notable for the development of the trabeated style which the Greeks approved and developed, and which is recognised as the special Grecian type.

The following diagram emphasizes the main facts:—



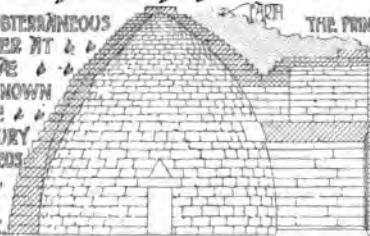
This style was essentially columnar and trabeated (trabs = a beam), and the character was largely influenced by the use of finely-dressed marble.

Stability was achieved solely by the judicious observance of the laws of gravity; the weights acting only vertically, and consequently needing but vertical resistances.

Stone or marble lintels being difficult to obtain of any great length, the columns or supporting members had to be placed comparatively close together, a method of design which called for a certain simplicity of treatment characteristic of the style. Mortar was unnecessary because it would have been of no use for distributing the pressure between the stone or marble blocks of which the walls and columns were constructed, as the beds of these were rubbed to a very fine surface and united with iron cramps. Further, careful study of the materials at hand was made, for Choisy found in the temples at Ægina and Pæstum (Nos. 20, 28), that the stones were laid on their natural bed or otherwise, according to the pressures they had to bear; thus the architraves, which had to support a cross pressure, were placed with the planes of their beds vertically, as they were then better able to withstand a cross-strain, and a wider intercolumniation could also be obtained.

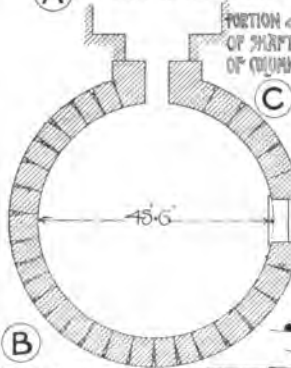
PELAGIC SYSTEM OF CONSTRUCTION.

THE SUBTERRANEAN CHAMBER AT MYCENAE ALSO KNOWN AS THE TREASURY OF ATREUS DATE ABOUT 1400 B.C.



THE PRINCIPAL CHAMBER IS FORMED OF HORIZONTAL RINGS, EACH OF WHICH HANGES OVER THE ONE BEHEATH THE EQUESTRE PROJECTION TO FORM THE CURVE, AND MOST PROBABLY THE FORM WAS PRODUCED AFTER THE WHOLE WAS ERECTED BY CUTTING AWAY THE PROJECTING ANGLES. THE ORIGINAL PROFILE OF THE INNER SURFACE REPRESENTS A SPECIES OF PARABOLIC CURVE. THE LEFT SIDE SHOWS THE

(A) SECTION THROUGH PRINCIPAL CHAMBER.



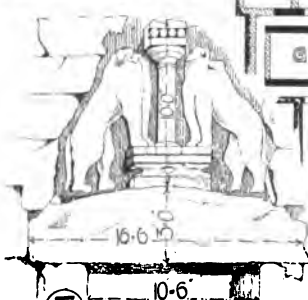
IRREGULAR FORM THAT HAS RESULTED FROM THE PRESSURE OF THE EARTH. THE SURFACE OF THE CHAMBER WAS COVERED WITH PLATES OF BRASS OR BRONZE.

CAP OF COLUMN.

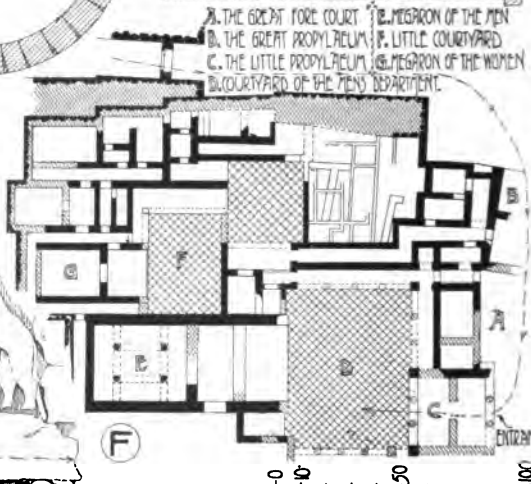
(B) PLAN OF THE

TREASURY OF ATREUS

THE GATE OF LIONS MYCENAE.



(E)



(F)

ACROPOLIS AT TIRYNS. PORTION OF THE UPPER (SOUTH) CASTLE, DESTROYED B.C. 463. ITS WALLS OF CYCLOPEAN MASONRY COMPOSED OF BLOCKS OF STONE 6 TO 10 FEET LONG & 3 FEET WIDE.

The general architectural character of the early works of the Hellenic period is heavy and severe, the influence of the Mycenæan period being apparent; but a gradual change towards refinement and beauty took place, and in the later periods the proportions of the columns were more slender, and the mouldings more refined. Unity of effect in the larger temples was obtained by the colonnade surrounding the shrine-cell, forming a contrast with the number of courts, halls, and chambers, decreasing in size from the entrance pylons, comprised in a typical Egyptian temple. Greek buildings have the qualities of harmony, simplicity and unity, because of the excellence of their proportions, their truthful and apparent construction, and the employment of one constructive principle.

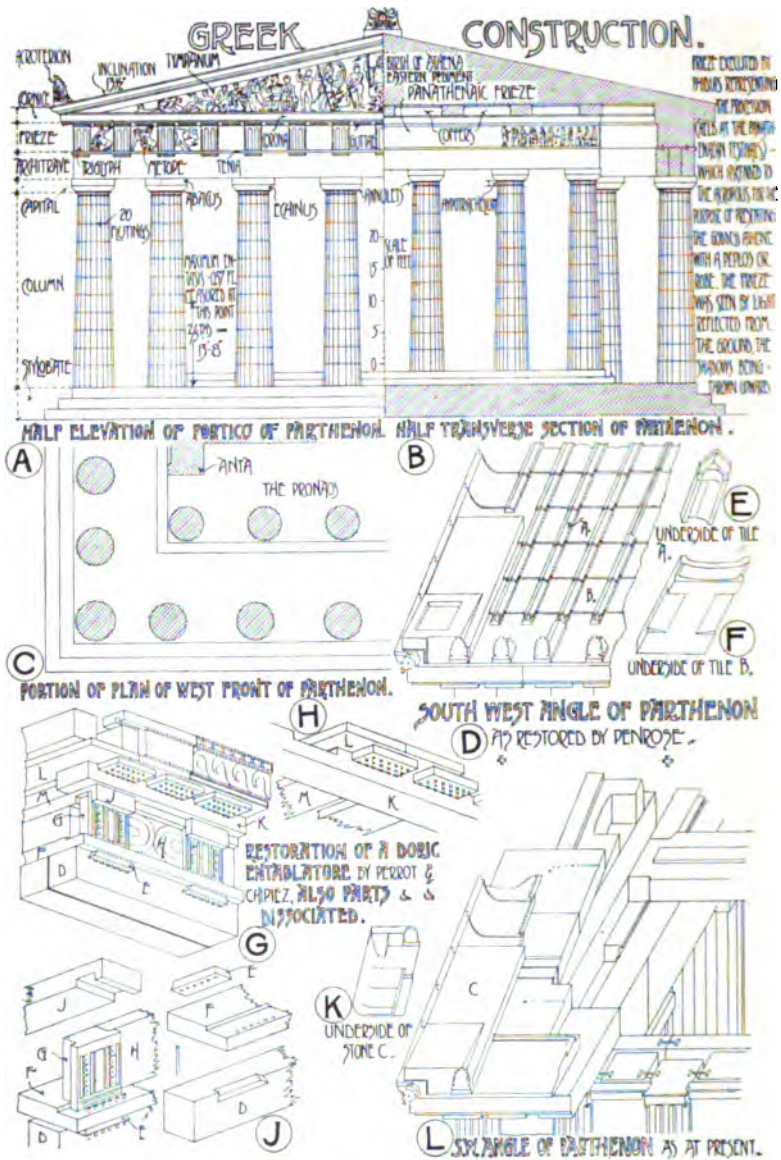
Many refinements in design were practised in the best period of Greek art, in order to correct optical illusions, as has been discovered by the late Mr. Penrose in many temples, and especially in the Parthenon. The long lines of the architrave, stylobate, pediments and other features, which, if built straight in reality, would appear to sag or drop in the middle of their length, were formed with slight convex lines. For instance, in the Parthenon the stylobate has an upward curvature towards its centre of 2·61 inches on the east and west fronts, and of 4·39 inches on the flanks. The vertical features were made to incline inwards in order to correct the tendency which such features have of appearing to fall outwards at the top. Thus, in the Parthenon the axes of the outer columns lean inwards 2·65 inches, and would meet if produced at a distance of a mile above ground. The faces of the architrave (No. 71, c) were also given an inward inclination. The shafts usually have an entasis which, in the case of the Parthenon column, amounts to about three-quarters of an inch in a height of 34 feet, and is shown on No. 71 d.

The close spacing of the angle columns has been already referred to, and these were increased in thickness as it was found that seen against the sky owing to irradiation (No. 71, b) they would appear thinner than those seen against the darker background formed by the cella wall.

According to Pennethorne a further correction is pointed out in an inscription from the Temple of Priene (No. 71, a), where according to Vitruvius, Bk. vi., chap. 2, the letters at the top of the inscription were increased in size, and the letters at the lower part decreased so that they might all appear of one size when seen from the point of sight.

Sculpture and carving of the highest class completed the effectiveness of their most important buildings, and these were influenced very largely by the hard, fine-grained marble employed, which rendered possible the delicate adjustment and refined treatment characteristic of this period.

GREEK EXAMPLES. I.



Color and gilding were applied very largely by the Greeks both to their buildings and sculpture, and some of the remains which have been lately excavated at Athens, Delphi, and elsewhere still exhibit traces of their original coloring.

The Greeks developed the so-called "Orders of Architecture," the Doric, Ionic and Corinthian being used by them. To these, in later times, the Romans added the Tuscan and Composite, thus completing the "five orders of architecture." An "order" in Greek and Roman architecture consists of the column or support, including base and capital, and the entablature, or part supported. The latter is divided into the architrave or lowest portion; the frieze, or middle member, and the cornice or uppermost part. The proportions of these parts vary in the different orders, as do the mouldings and decorations applied (No. 38).

The origin and evolution of the different parts of the three Greek orders are dealt with later under their respective headings, but the characteristics are well expressed in the following lines:—

"First, unadorn'd,
And nobly plain, the manly Doric rose;
Th' Ionic, then, with decent matron grace,
Her airy pillar heaved; luxuriant last,
The rich Corinthian spread her wanton wreath.
The whole so measured, so lessen'd off
By fine proportion, that the marble piles,
Form'd to repel the still or stormy waste
Of rolling ages, light as fabrics look
That from the wand aerial rise."—THOMSON.

The late J. Addington Symonds well observed that Art is commonly evolved through three stages: (1) The ardent and inspired embodiment of a great idea—this gives strength and grandeur; (2) the original inspiration tempered by increasing knowledge and a clearer appreciation of limits—the result being symmetry; (3) ebbing inspiration, details being elaborated, and novelties introduced to make up for its loss—this occasions a brilliant but somewhat disproportioned style. This progress can be traced in all departments of Greek life. In architecture, there is the solid strength of the Doric capital, the clear-cut beauty of the Ionic, and the florid detail of the Corinthian, in poetry the rugged grandeur of Æschylus, the exquisite symmetry of Sophocles, and the brilliant innovations of Euripides, and in sculpture, an Ageladas, a Pheidias, and a Praxiteles.

3. EXAMPLES.

The Mycenæan Period has already been defined as extending to shortly after the war with Troy, though in the Islands (*e.g.*, Cyprus, Crete, and Delos), it lasted on till the eighth century B.C.; but remains of a pre-Mycenæan period called **Minôan**, dating

back to about B.C. 3000, have been discovered by Dr. Arthur Evans, of which the Minōan Palace at Knossos in Crete is an example. The architectural remains of these periods include town-walls, palaces, and tombs. The walls are of three kinds of masonry: (1) "*Cyclopean*," *i.e.*, masses of rock roughly quarried and piled on each other, without cramp-irons, but with clay mortar, the interstices between the larger being filled with smaller blocks. Examples at Argos, Tiryns, Mycenæ, Knossos in Crete, and Athens. (2) *Rectangular*, *i.e.*, carefully hewn rectangular blocks arranged in regular courses, but the joints between stones in the same course are not always vertical. Examples at Mycenæ in the entrances and towers, and the entrance passage in "tholos" or beehive-tombs. (3) *Polygonal*, *i.e.*, many sided blocks accurately worked so as to fit together. Examples at Mycenæ, wall of Acropolis at Athens, and Cnidus. Thus all three styles occur in structures of "Mycenæan" age, although in out-of-the-way places, as in Caria, they survived for centuries. The first is seemingly the parent of the other two: but the common assumption that polygonal is later than rectangular masonry cannot be proved with regard to the Pelasgic period.

In addition various characteristic features were used:—

Corbels.—Sometimes horizontal courses were employed projecting one beyond the other till the apex was reached, producing either a triangular opening as is found above the doorways of the tholos-tombs (No. 15 A, E), or an apparent arch as at Cēniades in Acarnania, Assos, and the gallery at Tiryns, or a dome-shaped roof as in the Treasury of Atreus at Mycenæ (No. 15 A, B).

Inclined Blocks.—Sometimes inclined blocks forming triangular headed openings were employed as in the early, perhaps prehistoric, sanctuary on Mount Ocha in Eubœa, and the ancient shrine of Apollo on Mount Cynthus (Delos).

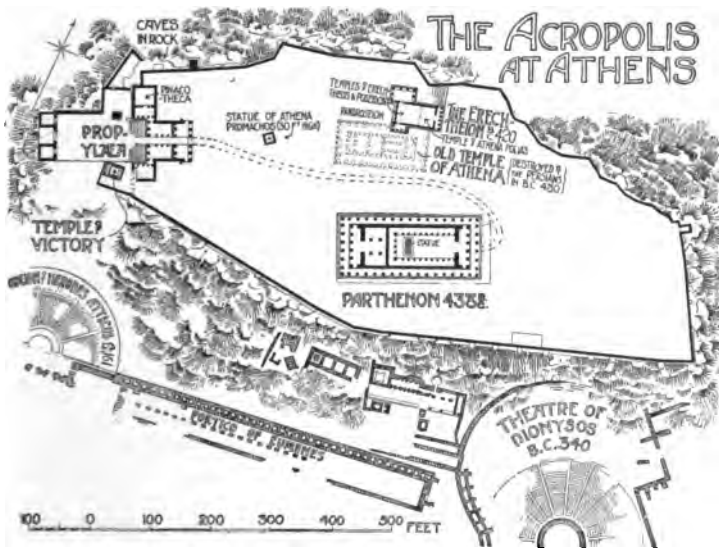
Arches.—A few examples of Greek arcuated work are extant, viz., a Cyclopean arch at Cnidus, an arch with a key-stone (partially dropped) in Acarnania, and an arched gateway at Cēniades. A water-channel or drain at Athens, which crosses the town from east to west, is partly arcuated and partly roofed with advancing corbels. The barrel-vault ("kamara") occurs in subterranean funeral chambers in Macedonia, and also in the vaulted passages at the theatre of Sicyon, the tunnel leading to the Stadium at Olympia and other places.

The "tholos" or beehive-tombs at Mycenæ, Orchomenos, and Amyclæ were originally modelled on underground huts for the living (Vitruv. ii., 1), the precise shape being found by Prof. Adler in Phrygia. At Mycenæ the tholoi are confined to the lower city as opposed to the shaft-graves of the upper city. The largest and best preserved is the so-called "Treasury of Atreus" (No. 15). It consists of a long entrance passage or "dromos," 20 feet broad by

115 feet long, a large vaulted chamber, about 50 feet broad by 50 feet high, and a small square tomb-chamber adjoining. A similar tomb at Orchomenos in Bœotia has a magnificently ornamented ceiling in its sepulchral chamber, while another at Menidi in Attica has no less than five superposed lintels to support the mass of earth above it (*cf.* section of Great Pyramid, No. 5 D). These tombs belong to the second stage in the evolution of the dwelling-house, the complete series being (*a*) natural cave (No. 2 H); (*b*) artificial cave below ground; (*c*) artificial cave above ground, *i.e.*, hut (No. 2 E). The famous Gate of Lions on the Acropolis at Mycenæ also belongs to this period (No. 15 E).

The Hellenic Period contains all the principal temples and monuments which were erected between the years B.C. 700 and the Roman occupation B.C. 146. The masterpieces of Greek architecture, however, were all erected in the short space of about 150 years, *viz.*, between the defeat of the Persians, B.C. 480, and the death of Alexander, B.C. 323.

Many of the Greek cities were upon or in the immediate vicinity of a hill which was known as the Acropolis (Greek = an upper city), and formed a citadel upon which the principal temples or treasure-houses were erected for safety. A model of the Acropolis at Athens in the British Museum will give a good general idea of the disposition of the important buildings placed thereon, as also the plan No. 17. Other great centres of architectural activity were Olympia, Delphi, Pæstum in South Italy, Sicily, and Asia Minor.



The *Temples* formed the most important class of buildings erected during this period, and a general description applicable to all is therefore given.

Their points of difference with Egyptian examples have been already referred to. (Pages 15, 21, 28). They were built with special regard to external effect, and were ornamented with sculpture of the highest class in order to form fitting shrines for the deities in whose honour they were erected. They were generally placed in a "temenos" or sacred enclosure, and consisted of a "naos" or cell, usually oblong in plan, in which was placed the statue of the god or goddess; a treasury or chamber beyond and a front and rear portico, with flanking colonnades, the whole generally raised on a stylobate of three steps.

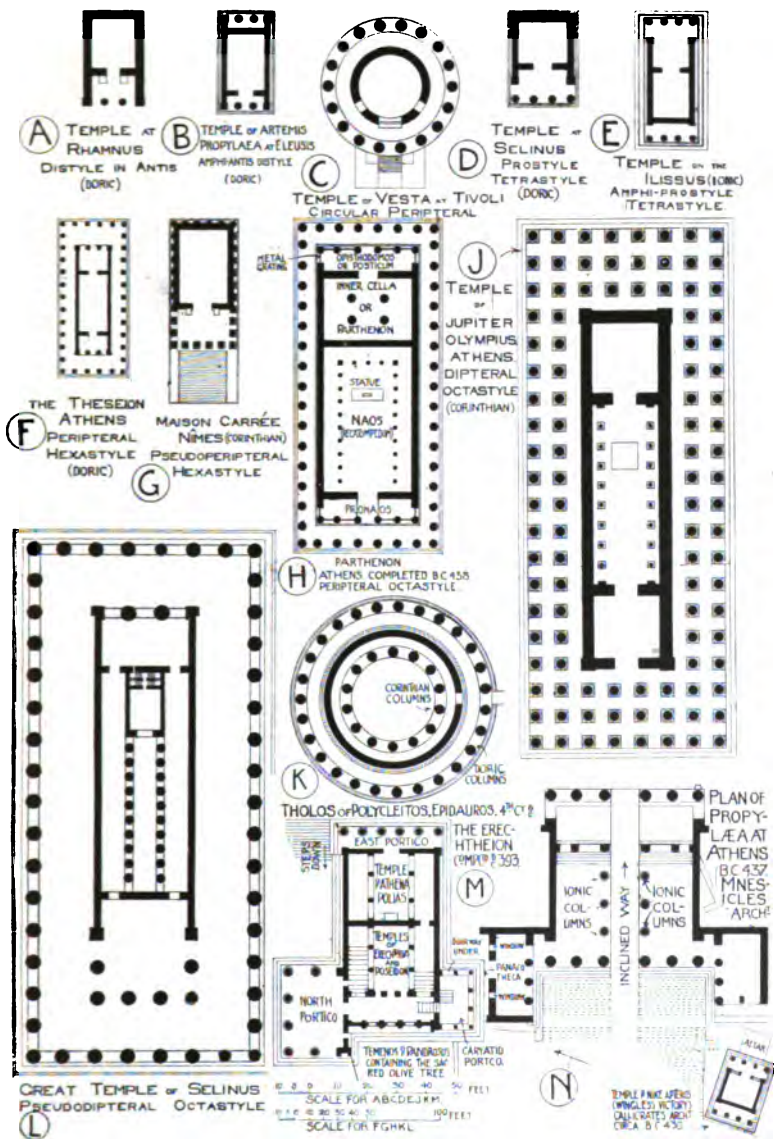
In the larger temples were internal colonnades of columns placed over each other to support the roof (Nos. 18 H, 20, 23, 25, 28 A, B, and 31). On the two end façades above the columns a triangular-shaped pediment, usually but not always filled with sculpture, terminated the simple span roof (Nos. 16 A, 20, 21, 23, 26, 27, 28, 30, and 31 A). These roofs were constructed of timber and covered with marble slabs; the ends of the overlapped joints being provided with ante-fixæ at the eaves (Nos. 16 D, 20 H, J, and 44 N). The door was almost always placed in the centre of the end wall, behind the portico of columns, and frequently planned so that the sun might enter and light up the statue opposite.

The general absence of windows in the temples, that at Agrigentum being the only exception (No. 28 o), has given rise to many theories as to how light was admitted. The method of lighting by a clerestory concealed in the roof which is favoured by Mr. Fergusson (No. 25 A), can be seen practically in Sir Arthur Blomfield's restoration of S. Peter, Eaton Square, London. Another theory by Herr Bötticher is also shown (No. 25 B).

The temple was occasionally "hypæthral," that is to say, there was an opening in the roof which admitted air and light to the central portion of the naos or cell. The use of an hypæthral opening has been often refuted, but it appears to have been used in the larger temples as in that of Jupiter Olympius at Athens (No. 18 J) (see Vitruvius), and in the Ionic Temple of Apollo-Didymæus, near Miletus, as mentioned in Strabo (lib. xiv.). The temple was the house of the local god, being merely a glorified dwelling-house, and some hold that the opening in the centre of an ordinary house must have had some counterpart in that of the divinity. Both alike were developed out of the smoke-hole of the primitive hut; the whole development being ably traced in an article on "domus" in Daremberg et Saglio, "Dict. des Antiquités." An extant hypæthral opening is that of the Pantheon, Rome (Nos. 54, 55).

Many authorities hold that light was obtained solely through

GREEK EXAMPLES. II



the doorways, others that the transparent Parian marble roofing slabs would admit sufficient light.

Artificial illumination by means of lamps may also have been employed.

The *different kinds* of temples are classified, by the disposition of their columns, and a sheet of plans (No. 18) is given in order to indicate the general distribution of parts, and also to show the evolution from the simple shrine-cell of the smaller examples. The different methods of spacing the columns one from the other is shown in No. 39, R, S, T, U, V.

- i. *Di-style in antis* at one end (the simplest form, having two columns between antæ). Ex. Temple of Rhamnus (No. 18 A).
- ii. *Di-style in antis* at both ends. Ex. Doric Temple at Eleusis (No. 18 B).
- iii. *Prostyle tetrastyle* (a front portico of four columns). Ex. Doric Temple at Selinus, Sicily (No. 18 D).
- iv. *Amphi-prostyle tetrastyle* (front and rear porticos of four columns). Ex. Ionic Temple on the Ilissus (No. 18 E), and Temple of Niké-Apteros (No. 18 N).
- v. *Peripteral circular* (a ring of columns surrounding a circular cell). Ex. Philipeion at Olympia, The Tholos at Epidauros (No. 18 K).
- vi. *Peripteral hexastyle* (a temple surrounded by columns, the porticos at each end having six). Ex. The Theseion Athens (Nos. 18 F and 21 D), Temple of Neptune, Pæstum (No. 28 A, B, C), Temple of Apollo at Bassæ (No. 27 C).
- vii. *Peripteral octastyle* (as last, but with eight columns to each portico). Ex. the Parthenon Athens (Nos. 18 H, 23 H).
- viii. *Pseudo-peripteral* (having columns attached to cella walls, a favourite form afterwards adopted by the Romans. See page 12). Greek ex. Temple of Jupiter at Agrigentum (No. 28 M).
- ix. *Dipteral octastyle* (double rows of columns surrounding temple, having ranges of eight at each end). Exs. Temple of Jupiter Olympius, Athens (No. 18 J), and Temple of Diana at Ephesus (No. 31 B).
- x. *Pseudo-dipteral octastyle* (as last, with the inner range left out). Ex. Great Doric Temple of Selinus, Sicily (No. 18 L).
- xi. *Dipteral decastyle* (as ix., but with ten columns at ends). Ex. Temple of Apollo Didymæus, near Miletus. A Roman example is the Great Temple at Baalbec (No. 53 E).
- xii. *Octagonal*. Ex. Tower of the Winds Athens (No. 28 K, L).
- xiii. *Irregular planning*. Ex. Erechtheion, Athens (Nos. 18 M, 30 F), The Propylæa, Athens (No. 18 N), Teleskion at Eleusis.

In order to keep the descriptions of classic temples together, mention is made here that the Romans employed the circular

the Doric capital, the most ancient and most sturdy, is proved by many of the Egyptian examples as exemplified at Beni-Hasan (No. 11), but as the origin of this type as best of the Greek order is of special interest, the theories put forward by several authorities are here stated.

The theories of the origin of the Doric capital, as given by the French architect, Viollet-le-Duc, who was the first to give a rational explanation of the Doric capital, are here stated.

THE DORIC COLUMN

The Doric column, the most ancient and most sturdy, is proved by many of the Egyptian examples as exemplified at Beni-Hasan (No. 11), but as the origin of this type as best of the Greek order is of special interest, the theories put forward by several authorities are here stated.

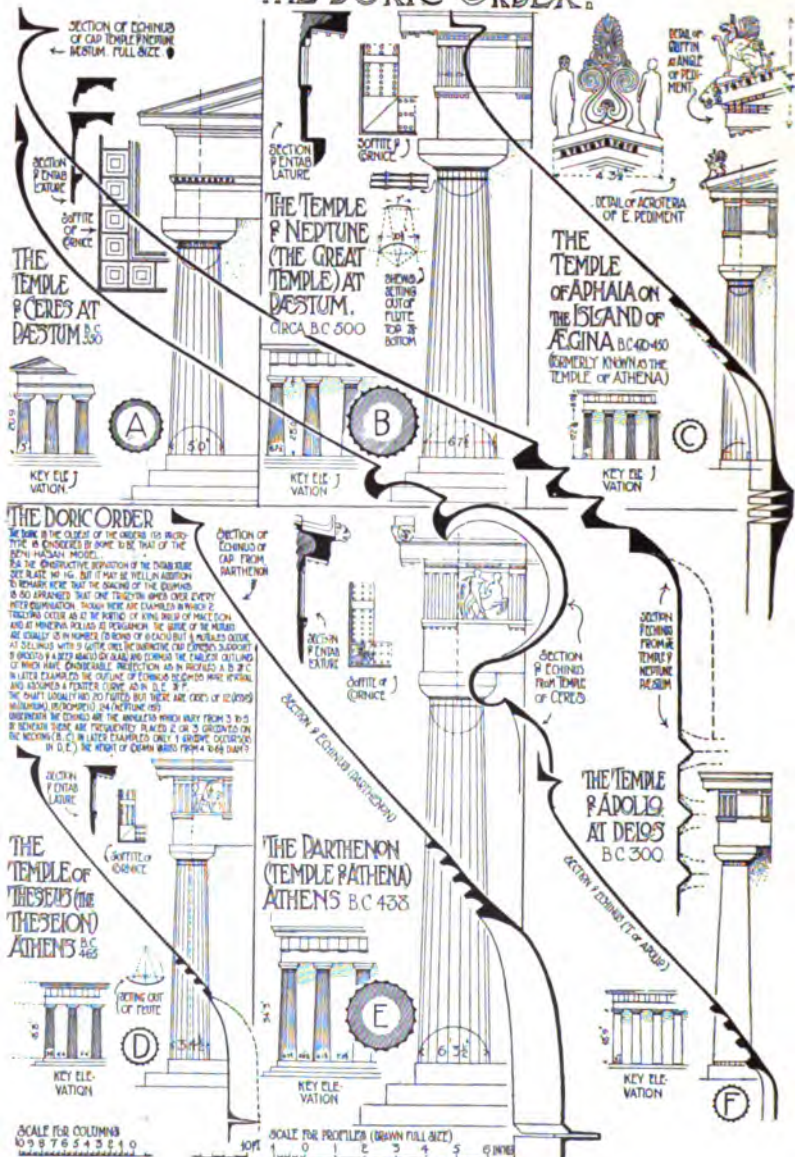
Perrin and Chipiez, in their monumental work on "Art in Primitive Greece," discuss the question of the wooden origin of the Greek Doric column and its entablature, and endeavour to show its derivation from the wooden built podiums or porch of the Mycenaean palace (No. 10). They themselves suggest no origin of the Capital, and decline to consider the derivation from the examples at Beni-Hasan in Egypt.

They make various interesting suggestions, e.g., the derivation of the "guttae" from constructive wooden pegs, and the restoration they give of the timber architecture of Mycenaean palaces, and the explanation of the wooden types used decoratively in the later stone architecture, form a consistent and attractive theory—a theory, moreover, which is yearly gaining ground and is to many minds convincing. Illustrations showing these reconstructions are given in No. 16.

Viollet-le-Duc, however, held a decided opinion that the orders of Greek architecture involved an original stone treatment. He was unable to conceive how the Greek Doric capital could have been derived from a timber form, and he considered the tripod in the frieze, not as the petrified ends of wooden beams, which could not be seen on four sides of a building, and which would be very difficult to flute across the grain of the wood—but as original stone uprights, fluted to express their function of vertical support, and therefore treated in this respect in the same manner as the columns, which were certainly fluted when in position. He likewise observed that "the form given to the entablature of the Doric order can be adapted with some unimportant variations to a structure in stone as well as of wood, in neither case involving

GREEK EXAMPLES. III.

THE DORIC ORDER.



the necessity of falsifying the form or the structure." He was not prepared to admit, then, that a wooden original suggested a stone structure in the composition of the Doric order; indeed, he would rather suppose the converse.

Garbett goes so far as to call the wooden theory an "insolent libel," and asserts that in the case of the inclination of the soffit of the cornice this barbarous theory is at once disproved by two facts, the inclination being observed on the fronts equally with the sides of the building, and its angle being wholly independent of that of the roof.

A later writer, Mr. H. H. Statham, in a recent work on architecture, rejects the wooden theory as far as the Doric column and capital are concerned, and adds that its adherents have to explain these facts: (i.) That the greater the age of the known and approximately dated examples, the thicker the columns are, while the reverse would probably have been the case had the original forms been wooden; and (ii.) That the characteristic moulding under the abacus of the Doric column is an essentially stone form, and one which it would not be at all easy to work in wood.

These opponents of the wooden theory might, however, have modified their views, had they been familiar with the recently-discovered examples of Pelasgic or "Mycenæan" construction. The similarities between these proto-historic buildings and the later Greek styles of architecture are too numerous to be accidental, and Pelasgic or "Mycenæan" palaces undoubtedly had columns and entablatures of wood.

The column, which has no base, but stands directly on a stylobate usually of three steps is, including the cap, from 4 to $6\frac{1}{2}$ times the diameter at the base in height. The circular shaft diminishing at the top to from $\frac{3}{4}$ to $\frac{2}{3}$ of this diameter is divided as a rule in 20 shallow flutes or channels separated by sharp arrises. Occasionally the flutes number 12 (Assos), 16 (Sunium), 18 (Greek Temple at Pompeii), or 24 (Pæstum, No. 19 B). The division into twenty flutes seems to have been selected in order that a projection or arris might come under each of the angles of the square abacus above, and at the same time a flute in the centre of the column as seen from the front, back or sides. It will be found that no other number of flutes between twelve and twenty-eight will enable this to be done, thus following out one of the Greek constructive principles of placing projections over projections. The shaft has normally an outward curvature of profile called the "entasis" (No. 17 A), to counteract the hollow appearance of straight sided columns. In early works this is often too obtrusive (*e.g.*, Basilica at Pæstum); where it is omitted altogether (*e.g.*, Corinth) the effect is lifeless; but the happy mean may be seen in the Parthenon, (page 67). The column is surmounted by a distinctive capital formed of abacus, echinus and annulets. The

GREEK EXAMPLES. IV.

THE TEMPLE OF APHAEA. (JUPITER PANHELLENIUS) AT AEGINA.

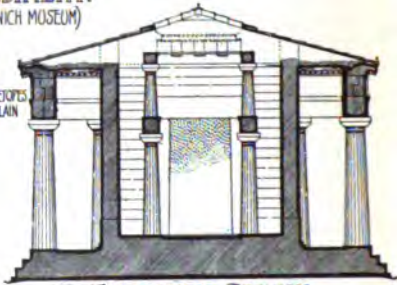
B.C. 470-450



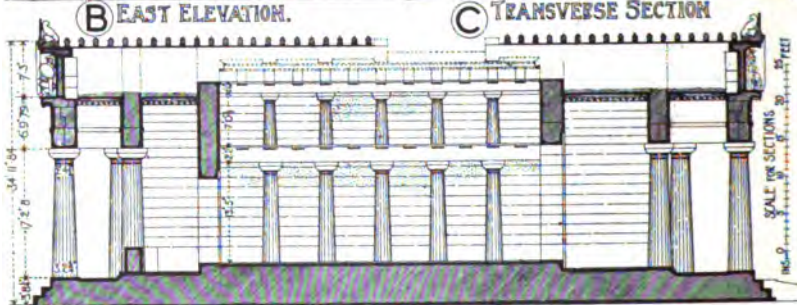
A WEST PEDIMENT.
(NOW IN MUNICH MUSEUM)



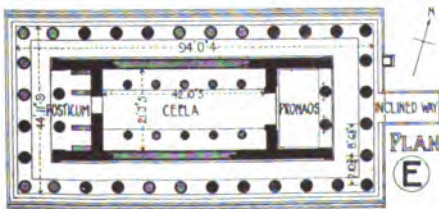
B EAST ELEVATION.



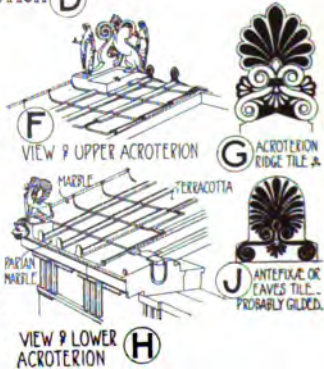
C TRANSVERSE SECTION



LONGITUDINAL SECTION D



PLAN E



F VIEW OF UPPER ACROTERION

G ACROTERION RIDGE TILE

H VIEW OF LOWER ACROTERION

J ANTEFIX OR EAVES TILE, PROBABLY GLAZED.

THIS TEMPLE IS HEXASTYLE PERIPTERAL. SOME COLUMNS MONOLITHS, OTHERS BUILT IN DRUMS. MATERIAL A SOFT YELLOW LIMESTONE, ORIGINALLY COATED WITH THIN STUCCO. ENTABLATURE WAS PAINTED. CYMATIUM, CORNICE, TILES & SCULPTURE OF PARIAN MARBLE. THE FLOOR OF PRONAOS HAS SQUARE HOLES FOR FIXING METAL SCREEN. THE POSTIUM IS CURIOUSLY DIVIDED BY TWO LONG BLOCKS. THE ACROTERIA ARE REMARKABLE. THE WESTERN & BEST PRESERVED PEDIMENT REPRESENTS THE FIGHT BETWEEN THE GREEKS & TROJANS OVER THE BODY OF PATROCLUS WHO LIES AT THE FEET OF ATHENA. THE EASTERN PEDIMENT PROBABLY REPRESENTS AN EARLIER EXPEDITION AGAINST TROY.

abacus is a square slab under which is a large convex moulding called the echinus, which is somewhat similar in outline to a human hand supporting a book. The profile of the echinus varies according to the date of erection, the earlier examples, such as the Temples at Pæstum (No. 19 A, B), being fuller in outline (approximately parabolic section), whereas in the later examples such as the Theseion (No. 19 D), and the Parthenon (No. 19 E) the curve approaches a straight line (approximately hyperbolic section). Annulets or horizontal fillets varying from three to five in number are placed beneath the echinus of the capital in order to form a stop or contrast to the long lines of the arrises between the flutes. Immediately below is the trachelion or necking, having beneath it the hypotrachelion formed of three grooves in the older or archaic examples and one in the later.

The **entablature**, usually about one quarter of the height of order, is supported by columns, and has three main divisions:—

(a.) The architrave is derived from its prototype, the wooden beam. It has considerable depth, and only one vertical face, whereas in the Ionic and Corinthian orders the usual number is three. Separating this from the frieze is a flat moulding called the tenia, and underneath this at intervals corresponding to the triglyphs is a narrow band called the regula, having six guttæ.

(b.) The frieze has triglyphs, ornamented with three channels, and metopes or square spaces between them, sometimes filled with sculpture of the highest quality (page 72). Beneath the triglyphs are guttæ or small conical drops. The triglyphs are placed at equal distances apart, and come immediately over the centre of each column and intercolumniation. At the angles, however, this is not so, because the two triglyphs meet with a bevelled edge, and in consequence the intercolumniation of the two outer columns in each front is less by about half a triglyph in width than that of the others.

(c.) The cornice consists of an upper or crowning part consisting of cymatium and birdsbeak mouldings beneath which is a vertical face known as the corona. The soffit is inclined upwards and parallel with the slope of the roof, and its underside has flat projecting blocks called mutules, which recall the feet of sloping rafters, one over each triglyph and metope, their soffits being ornamented with eighteen guttæ in three rows of six each.

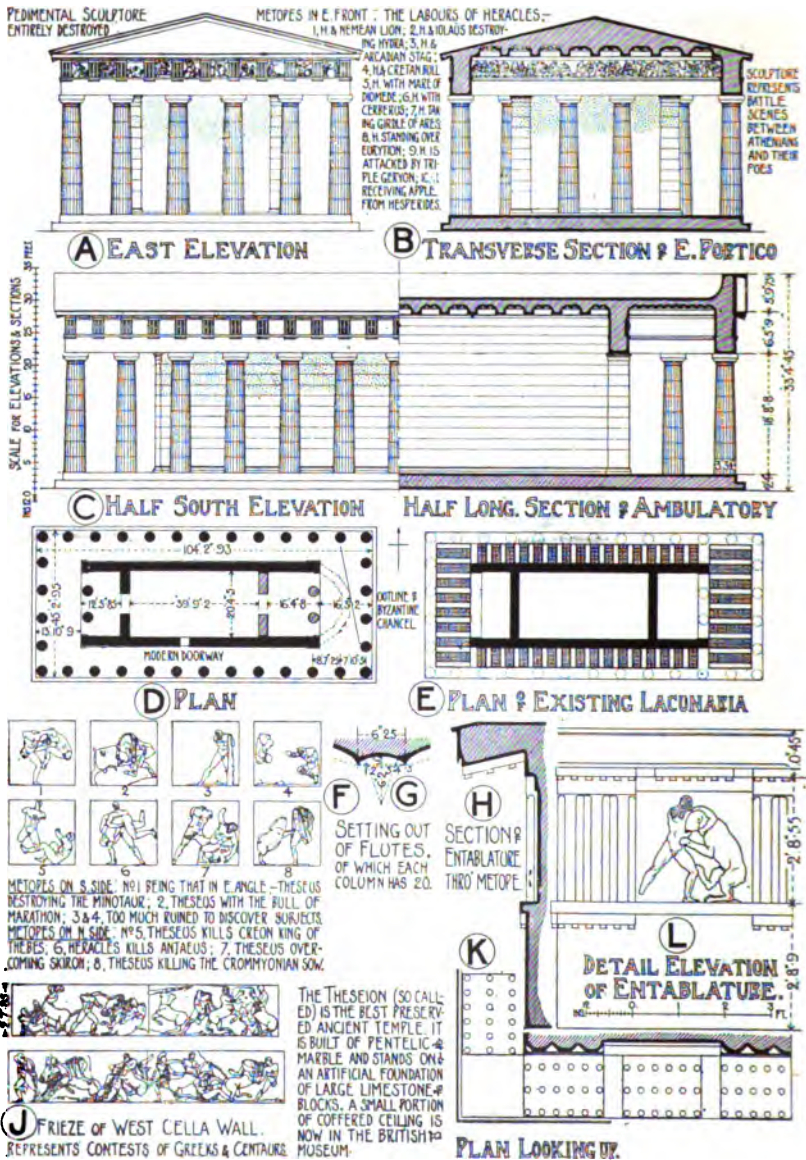
The principal examples are found in Greece, Sicily, and South Italy.

DORIC EXAMPLES IN GREECE.

	<i>Date.</i>	<i>Architect.</i>
The <i>Heraion, Olympia</i> (No. 31 C, D, page 66)	B.C. 700	
The <i>Temple of Athena, Corinth</i>	B.C. 650	
The <i>Temple of Poseidon, Island of Paros</i>	B.C. 6th cent.	
The <i>Temple of Zeus, Olympia</i> (page 67)	B.C. 472-469	Libon.

GREEK EXAMPLES. V.

THE SO-CALLED THESEION OR TEMPLE, OF HEPHAESTOS (?) B.C. 465.





THE THESEION, ATHENS.

DORIC EXAMPLES IN GREECE (*continued*).

	<i>Date.</i>	<i>Architect.</i>
The <i>Theseion</i> (so called) or <i>Temple of Hephaestos, Athens</i> (No. 19 D, 21, 22, 38 A) (page 67).	B.C. 465 (?)	
The <i>Temple of Aphaia</i> (Jupiter Panhellenius) on the <i>Island of Ægina</i> . (Nos. 19 C, 20) (page 67).	B.C. 470-450	
The <i>Parthenon, Athens</i> (No. 16 A, B, C, D, E, F, 17, 18 H, 19 E, 23, 24, 25, 40 A, D, K, 44 G, H) (page 67).	B.C. 454-438	Ictinus and Callicrates.
The <i>Temple of Poseidon, Sunium</i>	B.C. 440	
The <i>Propylæa</i> (Entrance Gateway), <i>Athens</i> (Nos. 17, 18 N, 26) (page 93).	B.C. 437-432	Mnesicles.
The <i>Temple of Apollo Epicurius</i> ("The Ally"), <i>Bassæ</i> , near Phigaleia in Arcadia (No. 27 A, B, C, D, L, M, N, 28 F, G, H) (page 72).	B.C. 430	Ictinus.
The <i>Temple of Demeter</i> (Ceres), or the Hall of the Mysteries, <i>Eleusis</i> .	B.C. 435-310.	Ictinus and Philon.
The <i>Tholos, Epidauros</i> (No. 18 K)	B.C. 4th cent.	Polycleitos the younger.
The <i>Temples of Themis and Nemesis</i> (No. 18 A), <i>Rhamnus</i> .		
The <i>Temple of Apollo, Island of Delos</i> (No. 19 F).	B.C. 300.	

DORIC EXAMPLES IN SICILY AND SOUTH ITALY.

	<i>Date.</i>	<i>Architect.</i>
The <i>Great Temple, Selinus, Sicily</i> (No. 18 L).	B.C. 610-509	
The <i>Temple known as the "Basilica," Paestum</i> (No. 28 D, E).	B.C. 550	
The <i>Temple of Ceres, Paestum</i> (No. 19 A).	B.C. 550	
The <i>Temple of Concord, Agrigentum</i>	B.C. 550	
The <i>Temple of Juno, Agrigentum</i>	B.C. 550	
The <i>Temple of Poseidon</i> (Neptune), <i>Paestum, S. Italy</i> (No. 19 B).	B.C. 500	
The <i>Temple of Athena, Syracuse, Sicily</i>	B.C. 6th cent.	
The <i>Temple of Egesta, Sicily</i>	B.C. 5th cent.	
<i>Temples (several) at Selinus, Sicily</i>	B.C. 628-410	
The <i>Temple of Zeus</i> (Jupiter) <i>Olympius, Agrigentum</i> (Girgenti), <i>Sicily</i> (No. 28 M, N, O) (page 75).	B.C. 480	Theron.

The **Heraion** (Temple of Hera), **Olympia** (B.C. 700) (Nos. 31 C, D, 41 E), is believed to be the most ancient of all Greek Temples hitherto discovered. It stands on a stylobate of two steps, measuring 168 feet by 64 feet 6 inches. The cella is very long in proportion to its width and has on either side a range of eight columns, the alternate ones being connected to the cella wall by means of short transverse walls. The peristyle columns, which with the capitals measured 17 feet in height, varied much in diameter and are both monolithic and built in drums. It is generally held that the original columns were of wood replaced by stone columns as they decayed (see page 59, on the

origin of the Doric Order). Pausanias mentions that in the 2nd century A.D. two of the columns in the opisthodomos were of oak.

The **Temple of Zeus, Olympia** (B.C. 472—469) is peripteral hexastyle on plan. The columns, of which there are thirteen to the sides, equal those of the Parthenon in height, but are much greater in diameter. The building was especially famous for its sculptured pediments by Pæonias and Alcamenes.

The so-called **Theseion** (? B.C. 465) (Nos. 18 F, 19 D, 21, 22, 38 A), is now generally believed to be the Temple of Hephæstos, and, although the best preserved Doric example in Greece, both date and name are a matter of doubt. It is peripteral hexastyle on plan with thirteen columns on each flank. The existing lacunaria, especially at the eastern end, still retain some of their original coloring. The metopes and portions of the frieze are shown on No. 21, but although both pediments were ornamented with sculpture none of this now remains.

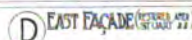
The **Temple of Aphaia** (Jupiter Panhellenius), (B.C. 470—450), (No. 19 C), on the Island of Ægina is an interesting and well-preserved example of an early peripteral hexastyle temple. On the interior are two rows of five columns which help to support the roof. A general description is given on No. 20.

The **Parthenon** (B.C. 454—438) (Nos. 16, 17, 23, 24), was erected in the time of Pericles, being dedicated to Athena Parthenos (the virgin Athena). Ictinus and Callicrates were the architects and Phidias was the superintending sculptor. The temple is peripteral octastyle on plan, with seventeen columns on the flanks. It is placed on a stylobate of three steps, the dimensions on the top step being 102 feet by 228 feet, i.e., a relation of breadth to length of about 4 to 9. Each of the steps measures about 1 foot 8 inches high and 2 feet 4 inches wide, and being too steep to ascend with comfort, intermediate steps were provided at the centre of the east and west ends (No. 23 F). On the east, the principal doorway, led into the cella, which, measuring 100 attic feet in length, was called the "Hecatompedon." The cella, 62 feet 6 inches wide, was divided into a nave and aisles by two rows of ten Doric columns, 3 feet 8 inches in diameter, and having sixteen flutes, as may be seen by the marks of their basis on the marble paving. Three columns were placed at the western end, so making the aisle continuous round three sides of the cella. Near the western end of the cella was the famous statue of Athena, mentioned hereafter. To the west of the cella was the Parthenon proper (i.e. virgin's chamber), from which the temple took its name. This chamber is a peculiarity differentiating the temple from most others, and it appears to have been used as the Hieratic treasury. It was entered from the opisthodomos by a large doorway corresponding to the eastern one, and its roof was supported by four Ionic columns (No. 23 A, C). The cella and the Parthenon were

THE PARTHENON ATHENS.



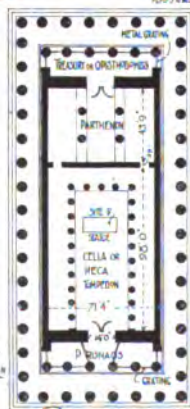
THE TYRANHOM is SCULPTURED BY PHIDIAS
(INDEPENDENT SCULPTOR) IN PORTLAND
THE BORN OF THE GREEKS
ATHENA



SINGING POSITION
 TROUSERS (SIZE 32W)
 CLOTHED IN PHILADELPHIA
 A REPRESENTATIVE OF THE PHILADELPHIA
 POLICE DEPARTMENT OF THE PHILADELPHIA
 SUPERVISOR THE NEW YORK CITY
 POLICE DEPARTMENT OF THE PHILADELPHIA



GOLF & ELEVATION SECTIONS



H PLAN (AFTER-PLANT)



J SKETCH SHOWING HOWS F. BENTON
FOUNDED IN CLIMAX
A/C/CLIMAX/CLIMAX THE BENTON
SUBJECTS BETWEEN THE DRIVEN THESE WERE
PREPARED BY CARPENTER, BUILDING ONE AGAINST THE
OTHER. THE UPPER BENTON MADE PART A BENTON IS
THE ONE BENTON IS HEART IN POSITION OF THE
CENTRE BENTON WHICH WAS OF BENTON
AT BY THE SURFACE IS BENTON BENTON AND
AT A LITTLE BENTON. THESE BENTON WERE
PREPARED BY BENTON BY THE BENTON OF BENTON
THE BEST BENTON BY BENTON AS WELL AS
THE BENTON A PERFECT BENTON. 



COPY OF STATUE OF
ATHENA PARHENOS

enclosed by walls about four feet thick, having on the outside, encircling the building, an ambulatory 9 feet wide on the sides and 11 feet in the front and rear. Both the pronaos and opisthodomos (measuring about 60 feet by 12 feet) were planned in a somewhat unusual manner, having six columns about $5\frac{1}{2}$ feet in diameter and 33 feet high, forming a prostyle portico on an upper stylobate of two steps. They were both used as treasure stores, and in order to render them secure, lofty metal grilles extending from the floor to the roof were fixed between the columns, the central intercolumniation having gates for means of access.

The internal columns supported an upper row of smaller Doric columns carrying the roof timbers and forming the side aisles in two heights (an arrangement still to be seen in the Temple of Poseidon (Neptune) at Paestum). Near the western end of the cella stood the famous statue of Athena Parthenos, being one of the most marvellous works of Phidias, representing Athena fully armed with spear, helmet, ægis and shield, supporting a winged victory in her right hand (No. 23 κ). It was a "chryselephantine" (gold and ivory) statue, about 40 feet in height, including the pedestal, and was constructed on a wooden core. The gold plates of which it was partly composed were detachable and could be removed in case of national dangers. The face, hands and feet were of ivory, but the drapery, armour, and accessories were of solid gold, and precious stones were inserted for the eyes.

The manner of lighting the interiors of Greek temples has already been referred to (page 56), and the theories there set forth apply especially to the Parthenon. The most prominent external features are the fluted marble columns, 34 feet 3 inches high, forming the peristyle and resting on the stylobate. Only thirty-two are still standing; they are 6 feet 3 inches in diameter at the base and 4 feet 7 inches under the echinus, and support an entablature 11 feet high with the usual divisions of architrave, frieze and cornice, as already described (page 59). The former is three slabs in thickness, and was ornamented on its eastern and western fronts with bronze shields, probably selected from those presented by Alexander the Great in B.C. 334, with dedicatory inscriptions between in bronze letters. The flanks of the building were enriched by the antefixæ placed at the bottom of the rows of marble tiles which covered the roof. The pediments or low gables which terminated the roof at each end had at their lower angles an acroterion and a carved lion's head. The apex (59 feet above the stylobate) was also ornamented by a large sculptured acroterion of the anthemion ornament (No. 16 A). The peristyle ceiling was richly ornamented with "lacunaria" and marble beams, some of which at the western end are still in situ. The triangular enclosed portions (tympana) were filled with sculpture of the most perfect type. The eastern pediment represents the birth of Athena and

GREEK ARCHITECTURE.

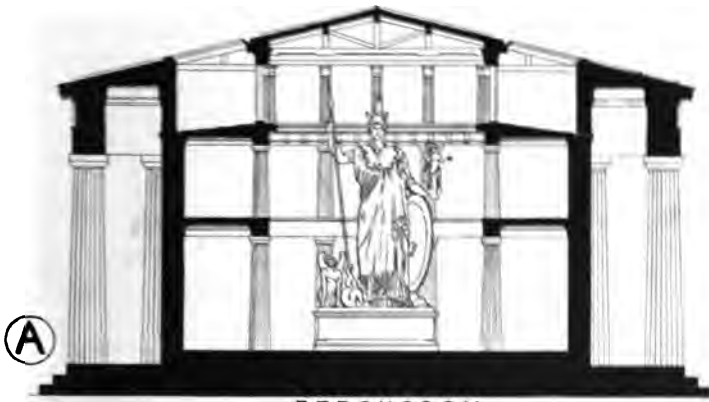


24.

THE PARTHENON, ATHENS.

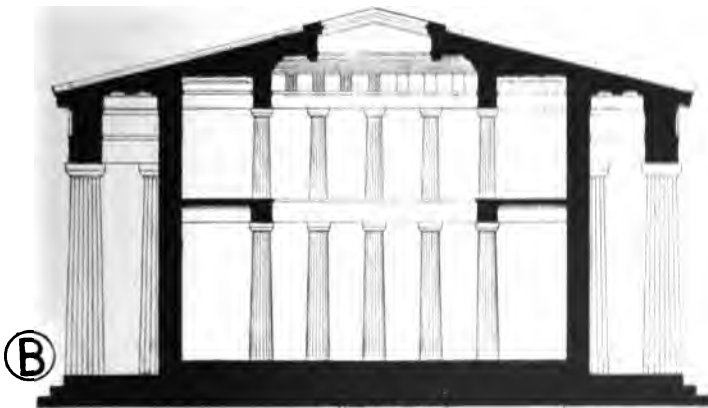
View of Angle.

COMPARATIVE RESTORATIONS OF THE METHODS OF LIGHTING THE INTERIORS OF GREEK TEMPLES



FERGUSSON
METHOD OF LIGHTING BY CLERESTORY

0 5 10 20 30 40
SCALE OF FEET



BÖTTICHER
METHOD OF LIGHTING BY SKYLIGHT.

the western the contest of Athena and Poseidon for the possession of Athens. The celebrated Panathenaic frieze was carved along the top of the outside of the cella wall, being taken across the east and west ends above the six columns to pronaos and opisthodomos. It is 3 feet 4 inches high, in very slight relief ($1\frac{1}{2}$ inches), and is carefully sculptured so as to be effective by reflected light (No. 23 F). It represents the Panathenaic procession every fourth year to the Acropolis in order to present the "peplos" or robe to the goddess Athena, and shows the preparations of the Athenian knights, procession of Athenian cavalry, chariots, men with olive branches, musicians, youths, sacrificial animals, maidens with sacrificial vessels, magistrates and gods, terminating with a great central group at the eastern end over the principal entrance to the temple. Out of a total length of 525 feet only 335 feet are in existence. The western frieze, excepting the three central figures, is in its original position; the greater portion of that belonging to the northern, southern and eastern sides is in the British Museum, the remainder, with the exception of eight fragments of the eastern frieze in the Louvre, being in the Athens museum. The sculptured metopes, about 4 feet 4 inches square, numbering fourteen on each front and thirty-two on each side, are in high relief. Those on the eastern façade represent contests between the gods and giants, on the western, between Greeks and Amazons, on the southern, between centaurs (man-headed horses) and Lapithæ, and on the northern, scenes from the siege of Troy.

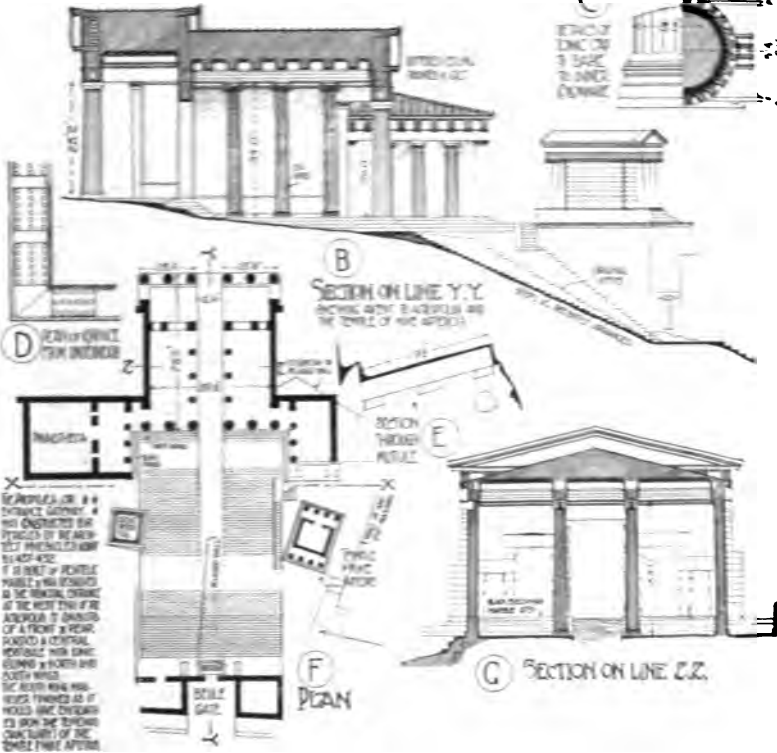
In the 6th century, the Parthenon was converted into a Christian Church, dedicated to the "Divine Wisdom," when an apse was formed at its eastern end. From 1206—1458 it was, under the Frankish Dukes of Athens, a Latin church. From 1458 it was again an orthodox Greek church until 1460, when it was converted into a mosque. In 1687 during the capture of Athens by the Venetians, it was much damaged by a shell which fell into a portion of the building used as a powder magazine.

In 1688, Athens was restored to the Turks and the building suffered considerable injury at their hands, until in 1801, through the instrumentality of Lord Elgin, many of the principal sculptures were removed to the British Museum.

"Earth proudly wears the Parthenon
As the best gem upon her zone."

Emerson.

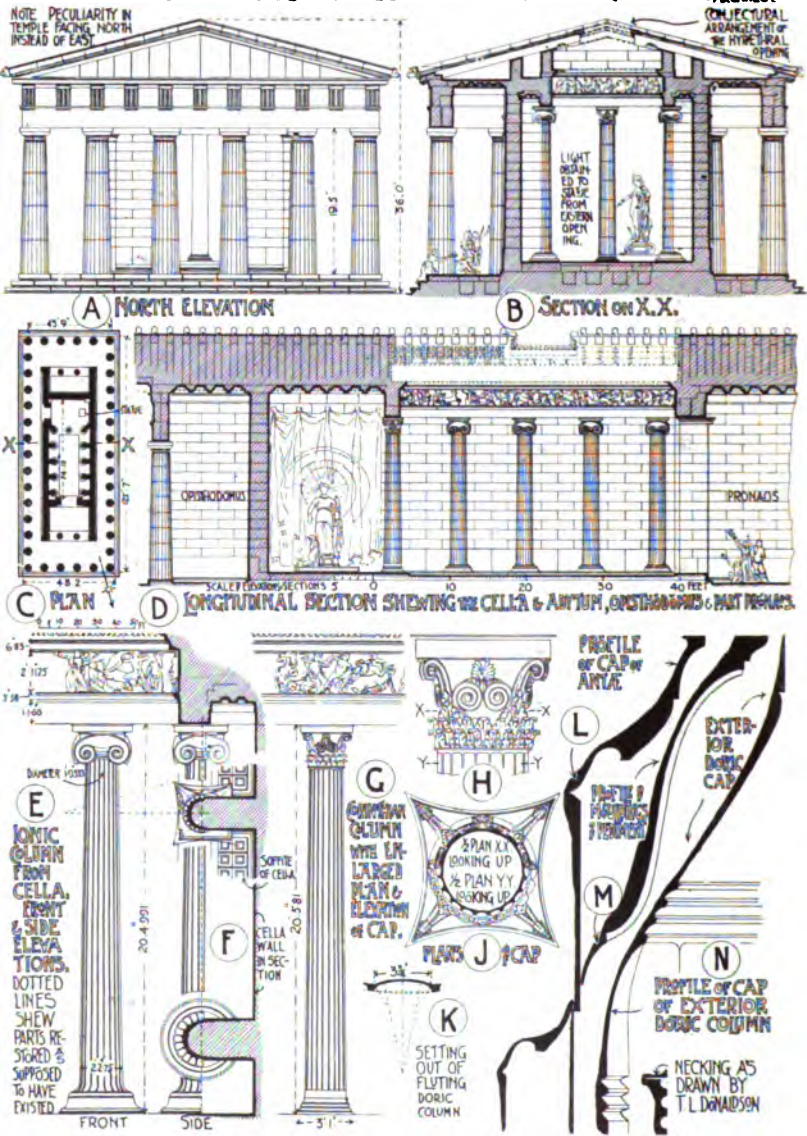
The **Temple of Apollo Epicurius** (The Ally or Helper), **Bassæ**, near Phigaleia in Arcadia (B.C. 430) (Nos. 27, 28 F, G, H, 29 N, O, P), of which Ictinus was architect, was an exceptional design in which all the three Grecian orders of architecture—Doric, Ionic and Corinthian—were employed. It is a peripteral



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GREEK EXAMPLES. IX.

TEMPLE OF APOLLO EPICURIUS AT BASSÆ NEAR PHIGALEIA BC 430 ICTINUS ARCHITECT

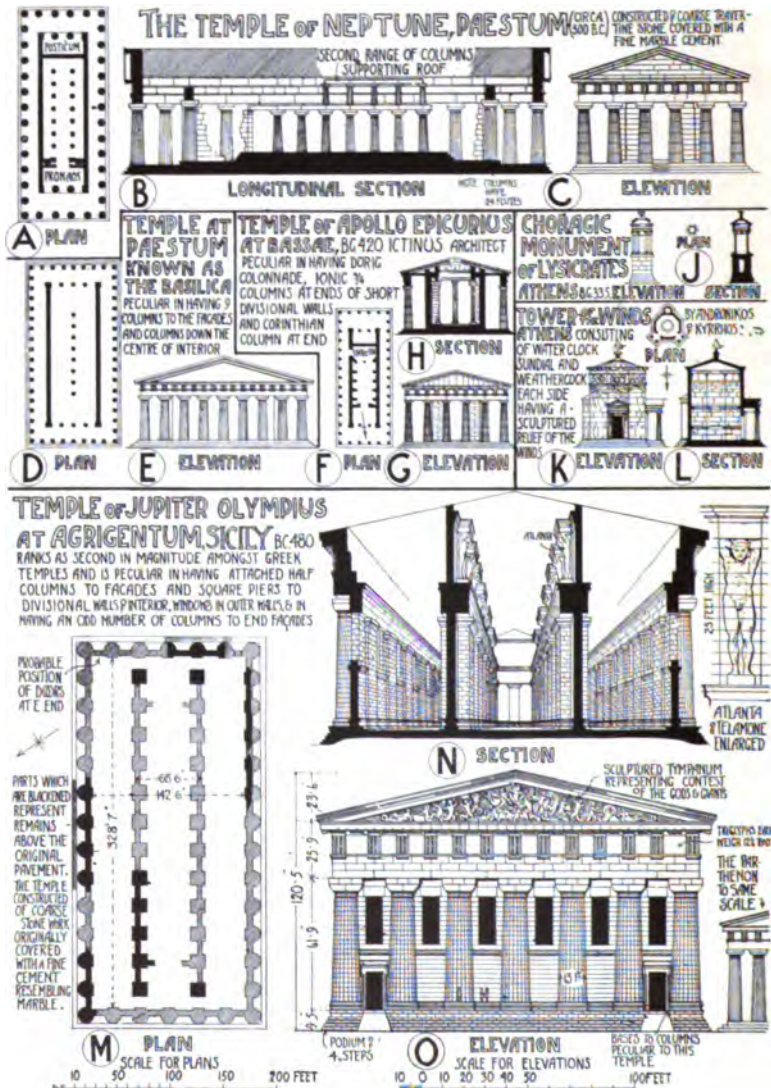


hexastyle temple with fifteen columns on each flank, all built up in drums. The principal façade faces north, an unusual arrangement, and apparently due to its erection on the site of an earlier temple. The statue of Apollo was placed to one side at the southern end of the cella forming the sanctuary of the earlier building, which was orientated, light being admitted by an opening in the eastern wall. Owing to the narrowness of the cella, internal rows of columns were avoided, but instead of these a range of five fluted Ionic half-columns on each side forming the ends of short cross walls connected to the cella walls. The two columns furthest from the entrance on each side are joined to walls placed diagonally with those of the cella. The single column at the southern end was of the Corinthian order, and is generally referred to as the earliest example known (No. 27 G, H, J). The lighting of the interior is conjectural, but the cella north of the more ancient sanctuary was probably hypæthral or had openings in order to admit top-light to the celebrated frieze above the internal half-columns (No. 27 B, D, E). These have a new and original treatment of the capital, with angle volutes, and have boldly moulded bases (No. 29 N, O, P). The sculptured frieze, about 2 feet in height and 100 feet in length, represents the battles of the Centaurs and Lapithæ, and the Athenians and Amazons. The building is constructed of a hard grey limestone, which being covered with a beautiful pink lichen of the district, has a very picturesque appearance.

The roof was covered with Parian marble slabs, measuring 3 feet 6 inches by 2 feet, and less than 2 inches in thickness. The ceiling of the peristyle was very richly treated in marble panels or lacunaria, and those to the pronaos and opisthodomos had marble beams in addition.

The **Temple of Zeus Olympius, Agrigentum** (B.C. 480) (No. 28 M, N, O), of which Theron was the architect, is of exceptional design, and ranks as second in size among Grecian examples. It is pseudo-peripteral septastyle in plan, having seven half columns on the front and fourteen on each side. These half columns are of great size, being 13 feet in diameter, and are represented internally by flat pilasters. The triple cella is of immense size, and is believed to have been lighted by windows high in the wall. The building was never completed, the illustrations being from restorations by Professor Cockerell. Owing to its immense size, structural truth (usually so important in Greek buildings) had to be sacrificed, the order being built up of small pieces, which in features like the echinus, abacus and architrave, is a departure from Greek principles, as is also the use of attached half columns. The architrave is supported not only by the half columns, but by the intervening screen wall to which they are attached.

GREEK EXAMPLES. X.



THE IONIC ORDER.

The Ionic order (No. 38 c) is especially remarkable for its scroll or volute capital. This, like so many other decorative motifs, seems to have been derived from the lotus bud of the Egyptians (No. 41 B), undergoing sundry modifications on its way from Egypt by way of Assyria to Asia Minor, but to what influence these modifications should be attributed is not at present clear. The spiral is also found in early Mycenæan jewellery and domestic articles as early as B.C. 800, and these origins might be sufficient to account for its adoption in a later period. The earliest extant Ionic capitals at Lesbos, Neandra, and Cyprus, exhibit volutes of a distinctly vegetable type with a palmette interposed, and early Ionic capitals at Delos and Athens form a link between these and later types. The **columns** have shafts usually about nine times the lower diameter in height, including the capital and base, having twenty-four flutes separated by filets, and not sharp edges as in the Doric order. The earlier examples, however, have shallow flutes separated by arrises, and the flutes number forty in the shafts in the Archaic Temple at Ephesus (No. 29 κ) and at Naukratis, and forty-four at Naxos. There is a moulded base (No. 40 η) usually consisting of a torus and scotia, but no square plinth. In the later examples a lower torus was added, making what is known as the Attic base. The capital consists of a pair of volutes or spirals, about two-thirds the diameter in height, on the front and back of the column, connected at their sides by what is known as the cushion, sometimes plain and sometimes ornamented, and on the front and back an echinus moulding carved with the egg and dart, and a bead moulding under.

The volutes were either formed by hand or by various geometrical processes easily acquired, one of which is shown on No. 41 G, where it will be seen it can also be formed by twisting a string round an inverted cone or common whelk shell. A further development was to make the angle capital with volutes facing the two façades by joining the two adjacent volutes at an angle approximating 45° (No. 41 P). The Temple at Bassæ (Nos. 27, 29, N, O, P), is an instance of all the volutes being thus placed.

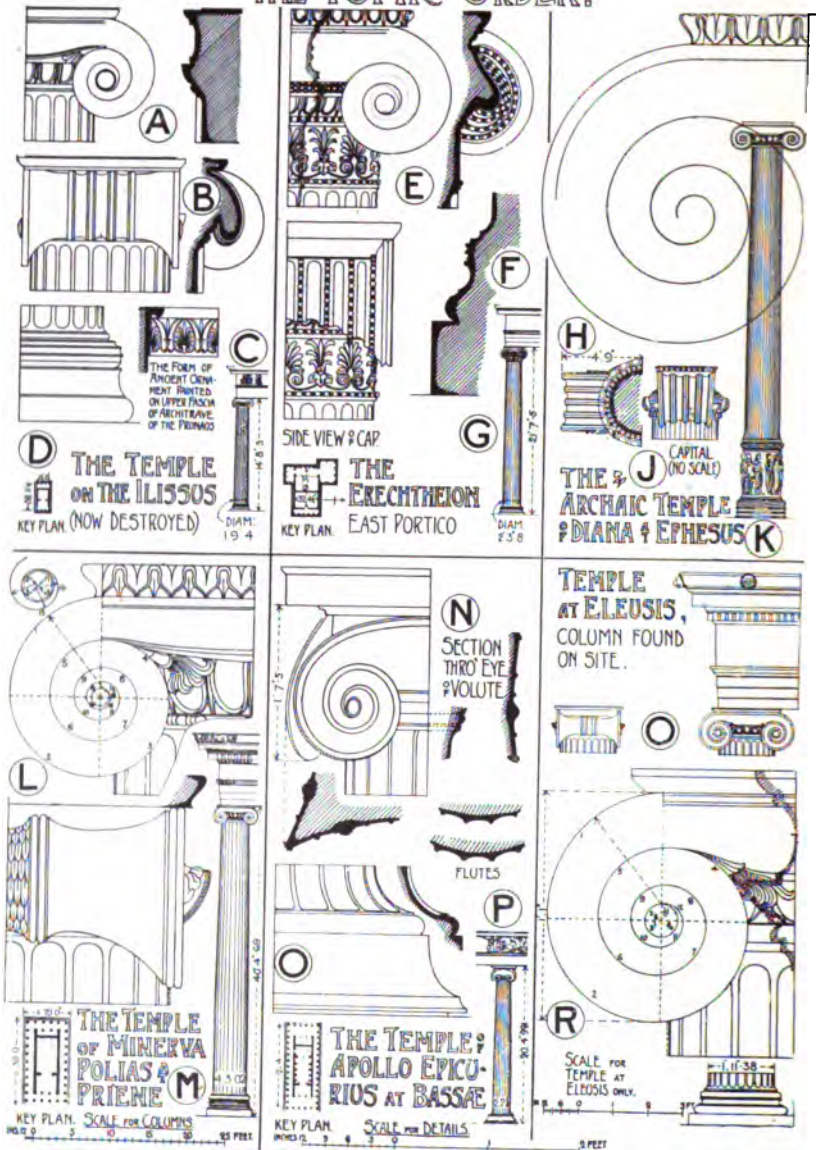
The **entablature** varies in height, but is usually about one-fifth of the whole order. It consists of (a) an architrave usually formed as a triple fascia, probably representing superimposed beams; (b) a frieze, sometimes plain, but often ornamented by a band of continuous sculpture (Nos. 27, 29 c); (c) a cornice, with no mutules, but usually with dentil ornament reminiscent of squared timbers, and having above it the corona and cyma-recta moulding.

The principal examples of the Ionic order are found in Greece and Asia Minor.

The Doric order provided a setting for sculptor's work. The

GREEK EXAMPLES. XI.

THE IONIC ORDER.



Ionic incorporated it with the order itself, usually in the form of carved enrichments on its main lines.

IONIC EXAMPLES.

	<i>Date.</i>	<i>Architect.</i>
The <i>Archaic Temple of Artemis (Diana), Ephesus</i> (No. 29 H. J. K) (page 84).	B.C. 550	
The <i>Temple on the Ilissus, Athens</i> (Nos. 18 E, 29 A. B. C. D. 38 C) (see below).	B.C. 484	
The <i>Temple of Niké-Apteros</i> ("Wingless Victory"), <i>Athens</i> (Nos. 18 N, 26 B, F, 41 P) (see below).	B.C. 438	Callicrates.
The <i>Propylæa, Athens</i> (six internal columns) (page 93) (No. 17, 18 N, 26, 40 F).	B.C. 437-32	Mnesicles.
The <i>Temple of Apollo Epicurius, Bassæ</i> (The Internal order only) (No. 27, 28 F, 29 N, O, P) (page 72).	B.C. 430	Ictinus.
The <i>Erechtheion, Athens</i> (No. 17, 18 M, 29 E, F, G, 30) (page 81).	B.C. 420-393	Mnesicles.
The <i>Mausoleum, Halicarnassos</i> (No. 35) (page 94).	B.C. 354	Satyrus and Pythius.
The <i>Temple of Dionysus, Teos</i>	B.C. 350	Hermogenes.
The <i>Temple of Hera, Samos</i>	B.C. 350	
The <i>Philipeion, Olympia</i> (External colonnade).	B.C. 338	
The <i>Temple of Artemis (Diana), Ephesus</i> (No. 31 A, B) (page 84).	B.C. 330	Pæonius and Deme- trius of Ephesus.
The <i>Temple of Apollo - Didymæus</i> near <i>Miletus</i> or <i>Branchidæ</i> (page 84).	B.C. 335-320	Pæonius of Ephesus, Daphne of Miletus.
The <i>Temple of Minerva Polias (Diana)</i> at <i>Priene</i> , near <i>Miletus</i> (No. 29 L, M.)	B.C. 320	Pythius.

The **Temple on the Ilissus, Athens** (B.C. 484) (Nos. 18 E, 29 A, B, C, D, and 38 C), was amphi-prostyle tetrastyle, placed on a platform or stylobate of 3 steps. The cella was only 15 feet 4 inches square. The columns, including base and capital, were 14 feet 8 inches high, and supported an entablature 4 feet deep. The Temple was entirely destroyed by the Turks in 1780.

The **Temple of Niké Apteros** (Athena Niké), **Athens** (B.C. 438) (Nos. 17, 18 N, 26 B, F, 41 P), Callicrates being the architect, is perched picturesquely on the south-western spur of the Acropolis Rock, and is a beautiful example of a smaller Ionic Temple. In front of the Temple at the eastern end stood the sacrificial altar of the goddess, and the platform of rock on which the edifice stands was surrounded on three sides by a marble balustrade. It is amphi-prostyle tetrastyle in plan, and is raised on a stylobate of 3 steps, the cella being only 13 feet 9 inches by 12 feet 5 inches. The Ionic columns to the east and west porticos resemble the internal columns of the Propylæa. They have a systyle intercolumniation, are 1 foot 9 inches in diameter, and 13 feet 6 inches high, and support an entablature 4 feet 3 inches in height. The total height to the apex of the

THE ERECHTHEION, ATHENS B.C. 420-393



pediment is only 23 feet. The sculptured frieze, 18 inches high, originally consisting of fourteen slabs (four are in the British Museum), is in high relief. The marble balustrade mentioned above was 3 feet 2 inches high, enriched with very fine sculpture dating from B.C. 425-400. The Temple was removed by the Turks in 1684 and built into a battery on the Acropolis. In 1836, on the destruction of the battery, the materials were recovered and reconstructed by the architects Ross, Schaubert, and Hansen.

The **Erechtheion, Athens** (B.C. 420-393) (Nos. 17, 18 M, 29 E, F, G, and 30), of which Mnesicles was the architect, is situated on the Acropolis, north of the Parthenon, and was erected on the site of an older temple burnt by the Persians in B.C. 480. The temple was regarded with special veneration by the Athenians, as it contained the memorials of the religion of the State, viz. :—the sacred olive tree that Athena called forth in her contest with Poseidon, the salt well produced by the trident of Poseidon, the tomb of Cecrops, the olive wood Xoanon (primitive statue) of Athena Polias, the golden lamp of Callimachus, and other curiosities and spoils from the Persians. It is an interesting example of unusual and irregular planning, due to its sloping site and the fact that it consisted of three distinct shrines. The distribution of the interior, which measures 61 feet 3 inches by 31 feet 6 inches, is still a matter of conjecture. It has no side colonnades, hence it is called "apteral." The eastern portion was appropriated to the shrine of Athena Polias (guardian of the city), the western portion to those of Erechtheus and Poseidon, the Pandroseion being probably included within the precincts to the west of the temple proper. There are three porticos of different designs: an eastern Ionic hexastyle portico, a northern Ionic tetrastyle portico, and a southern Caryatid portico. The eastern portico probably formed the principal entrance. The columns are two diameters apart (systyle), the northern one being now in the British Museum. The northern portico gave access to the western cella; it is on a level 10 feet lower than the eastern one, from which it is approached by a wide flight of steps on the north. It projects westward of the main building, and its columns, three diameters apart (diastyle), are arranged in a manner unknown in other Greek buildings. They are 2 feet 9 inches in diameter, and 25 feet high. The doorway in this portico is of the finest workmanship (No. 37), with carved consoles and architrave enrichments. The southern or Caryatid portico (as it is called) was probably not an entrance, but a raised "tribune," as it had only a small entrance on its eastern side, whence the lower level of the western cella was reached by means of steps (No. 30 D, F). It has six sculptured draped female figures, 7 feet 9 inches high (Nos. 30 G and 42 G), similarly spaced to the columns of the northern portico, but resting on a solid marble wall about 8 feet above the level of the

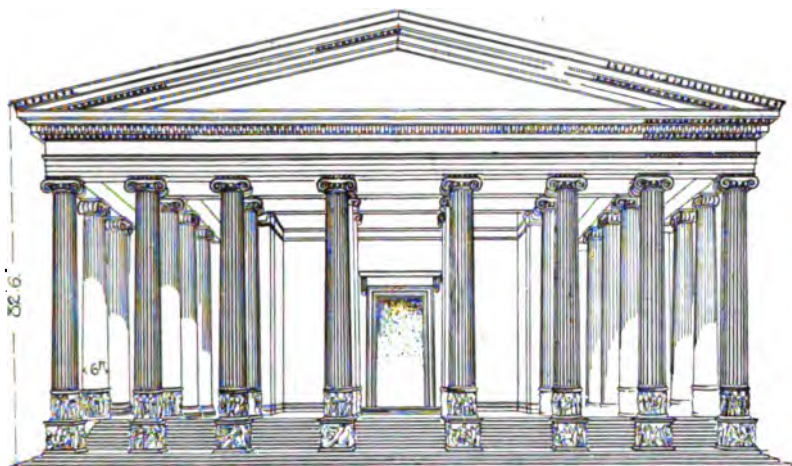
terrace and supporting an unusual entablature on which rests the marble coffered roof. All the figures face southwards, the three western leaning on their right (outer) legs, and the three eastern on their left, thus correcting the same optical illusion as in the Parthenon and other temple façades. (The second Caryatid from the west is in the British Museum, being replaced in the building by a terra-cotta copy.) The exterior, constructed in marble from Mount Pentellicus, owes much of its character to the sloping site and unusual and irregular disposition of the three porticos, unlike in character, height, and treatment. The north portico is an example of a very rich treatment of the Ionic order. The capital has a plaited torus moulding between the volutes once inlaid with colored stones or glass, and bronze embellishments were formerly affixed to other parts of the capital. The spiral of the volute appears to have been finished by hand and is enriched with intermediate fillets, while the cushions (sides) have hollows and projections carved with the bead and reel ornament (No. 41, L, M, N, O). The abacus is enriched with the egg and tongue ornament. The neckings of the columns are carved with the "anthemion" (palmette) ornament, which is also applied to the antæ (No. 44 F), and carried round the entire building under the architrave. The shafts of the columns have an entasis, and the upper torus of the bases have plaited enrichments.

The order of the eastern portico is very similar although less rich. The angle columns in each portico have the volutes arranged so as to show on both faces. The main building is crowned with an entablature 5 feet high, with the usual triple division of architrave, frieze, and cornice, with water-leaf and egg-and-tongue enrichments. The skyline was enriched by the acroterion ornaments of the pediments and the antefixæ of the marble roofing slabs. The frieze to the porticos and main building was formed of black Eleusinian marble, to which the sculptured figures of white marble were attached by metal cramps, a method of showing up the sculptured figures which in other temples was frequently gained by the use of color. The pediments appear to have been devoid of sculpture.

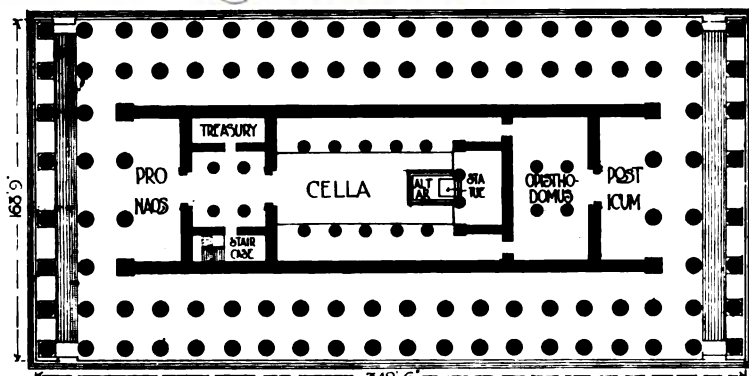
The west wall was provided in Roman times with four Ionic half-columns, angle antæ and three windows.

The Erechtheion has passed through various vicissitudes. It was transformed into a church in the time of Justinian, and after the Turkish annexation it was converted into a harem. In 1827, during the Greek revolution, the north portico and coffered ceiling and portions of the rest of the building were destroyed, only three of the Caryatides remaining in position. In 1838, the walls were partially rebuilt in their present state, and in 1845 the Caryatid portico was re-erected. In 1852 a storm damaged the building, overthrowing the upper half of the western wall and engaged Roman columns.

GREEK EXAMPLES. XIII.



(A) VIEW OF FRONT FAÇADE.

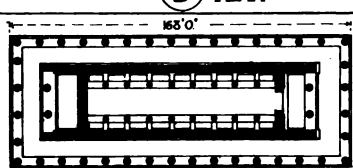


(B) PLAN

THE TEMPLE OF DIANA AT EPHESUS.

(AFTER A. S. MURRAY)
THIS TEMPLE (KNOWN AS ONE OF THE SEVEN WONDERS OF THE WORLD) WAS BUILT BY DEDICATED ARCHT. B.C. 350 ON THE SITE OF AN OLDER TEMPLE. IT IS REMARKABLE FOR THE SIZE & FOR THE SCULPTURED COLUMNS & PEDIMENTALS.

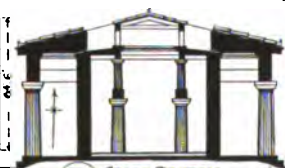
SCALE FOR PLANS



(C) PLAN

THE HERAEON AT OLYMPIA B.C. 700 (AFTER PEDERSON)

SCALE FOR SECTION



(D) CROSS SECTION

The **Temple of Artemis (Diana), Ephesus** (B.C. 330) (No. 31 A, B), occupied the site of two previous temples. The oldest archaic temple (No. 29 H, J, K) erected from the designs of Ctesiphon (B.C. 550), was burnt in B.C. 400. It was either restored or rebuilt by the architects Pæonius and Demetrius, of Ephesus, but was again burnt in B.C. 356, on the night of Alexander's birth. The later temple, regarded as one of the seven wonders of the world, was erected in B.C. 330 in the time of Alexander the Great.

The site of the temple was discovered by the architect Wood in 1869—74, and many of the remains, both of the archaic and later temples are now in the British Museum. The building rested on a lower stylobate of four steps, having at each end an additional flight of steps, placed between the first and second rows of columns, in order to reach the upper platform. Conjecturally restored by the late Dr. Murray, by the aid of Pliny's description, the plan is dipteral octastyle, having double ranges of twenty columns on each flank. In addition to the cella, there were a pronaos, posticum, treasury, opisthodomos and staircases leading to the roof. Pliny mentioned that the temple had one hundred columns, thirty-six of which were sculptured on the lower drum, but he does not mention the sixteen front and rear columns with square sculptured pedestals, which are shown on a lower level so that their top surface is level with the upper platform. Behind these at each end are eight of the columns with sculptured drums, two being placed *in antis* to the pronaos and posticum, thus making the thirty-six columns with sculptured drums mentioned by Pliny.

The cella is believed to have had super-imposed columns to carry the roof. The building externally must have been one of the most impressive among Greek temples, owing to its size, and the sculpture on the above-mentioned square sub-pedestals and thirty-six circular drums, which were probably suggested by the archaic temple, are distinctive of this building.

The **Temple of Apollo Didymæus**, near **Miletus** (B.C. 335—320), was by the architects Pæonius of Ephesus, and Daphne of Miletus. There was an archaic temple having seated figures on either side and a lion and sphinx, which were dedicatory offerings to Apollo. (Ten of these seated figures and the lion and sphinx are in the archaic room of the British Museum.) This archaic temple was destroyed by the Persians under Darius, on the suppression of the Ionic revolt in B.C. 496. The new temple is referred to by Strabo, who says, "In after times, the inhabitants of Miletus built a temple which is the largest of all, but which on account of its vastness remains without a roof, and there now exists inside and outside precious groves of laurel bushes."

The building is dipteral decastyle on plan, the cella being hypæthral. It has a very deep pronaos, having beyond it an

ante-chamber with stone staircases on either side. The cella walls were ornamented with Ionic pilasters, six feet wide and three feet deep, resting on a continuous podium, ranging with the peristyle level. These pilasters were crowned with capitals of varied design, having between them a sculptured band of griffins and lyres.

At the eastern (entrance) end on either side of the doorway were half columns having Corinthian capitals, the acanthus leaves being unusually placed and the central volutes undeveloped. At the western end of the cella, Messrs. Rayet and Thomas discovered the foundations of a shrine.

The peristyle columns of the Ionic order are fluted, and the bases are of very varied design, being octagonal with carved panels on each face.

THE CORINTHIAN ORDER.

The Corinthian Order (Nos. 33 F, 38 E, 43 A, B, C), which is still more ornate than the Ionic, was little used by the Greeks.

The **column**, the base and shaft of which resemble those of the Ionic, is generally about ten times the diameter in height, including the capital, and is placed on a stylobate in the same manner as the other orders. The distinctive capital is much deeper than the Ionic, being about one to one-and-one-sixth diameters in height. The origin of the capital is still unknown. It may have been derived from the Ionic, such as the Erechtheion example, where bands of sculpture occur beneath the scrolls, or it may have been borrowed from the bell-shaped capitals of the Egyptians, with the addition of the Assyrian spiral.

Callimachus of Corinth, a worker in Corinthian bronze, is sometimes referred to as the reputed author of the capital, and as the earlier examples appear to have been of this metal, the name may have been derived from the fact, for Pliny (xxxiv. chap. iii.) refers to a portico which was called Corinthian, from the bronze capitals of the pillars. It consists normally of a deep bell on which were carved two tiers of eight acanthus leaves, and between those of the upper row eight caulicoli (caulis=a stalk) surmounted by a curled leaf or calyx, from which spring the volutes (also known as caulicoli and helices by different authorities), supporting the angles of the abacus, and the small central volutes supporting a foliated ornament.

The abacus is moulded and curved on plan on each face, the mouldings at the angles either being brought to a point as in the Temple of Apollo Didymaeus, at Miletus, Temple of Jupiter Olympius, at Athens (No. 43 A), and the Stoa or Portico, Athens (No. 33 F, G), or having their edges chamfered off as in the Monument of Lysicrates (No. 38 E).

COMPARATIVE ARCHITECTURE.



32. CHORAGIC MONUMENT OF LYSICRATES, ATHENS.

Another type of capital has one row of acanthus leaves with palm leaves over, and a moulded abacus square on plan, as in the Tower of the Winds, Athens (No. 43 B).

The **entablature**, which is usually about one-fifth of the height of the entire order, bears a general resemblance to the Ionic, having the usual triple division of architrave, frieze and cornice, the mouldings of the latter having additional enrichments.

CORINTHIAN EXAMPLES.

	<i>Date.</i>	<i>Architect.</i>
The <i>Temple of Apollo Epicurius, Bassæ</i> (single internal column). (No. 27 G, H, J) (page 72).	B.C. 430	Ictinus.
The <i>Tholos, Epidauros</i> . (Internal order) (No. 18 K).	B.C. 4th cent.	Polycleitos the younger.
The <i>Philipeion, Olympia</i> . (Internal order of half columns).	B.C. 338	
The <i>Choragic Monument of Lysicrates, Athens</i> (Nos. 28 J, 32, 38 E) (see below).	B.C. 335-34	
The <i>Temple of Apollo Didymæus, Miletus</i> (or Branchidæ). (Two attached internal columns) (page 84).	B.C. 334-320	Præonius, of Ephesus and Daphne, of Miletus.
The <i>Olympieion</i> (or <i>Temple of Zeus-Olympius, Athens</i> (No. 18 J, 43 A) (page 90).	B.C. 174— A.D. 117	Cossutius (completed by Hadrian).
The <i>Tower of the Winds, Athens</i> (Nos. 28 K, L, 43 B, D, E) (page 88).	B.C. 100-35	
The <i>Vestibule, Eleusis</i> .		

The **Choragic Monument of Lysicrates, Athens** (B.C. 335-34), (Nos. 28 J, 32, 40 J, L, 43 C), is a type of structure which was erected to support a tripod as a prize for athletic exercises or musical performances in the Grecian festivals. They are referred to in Virgils' *Æneid* (V. verse, 140) in the following lines:—

" In view amid the spacious circle lay
The splendid gifts, the prizes of the day,
Arms on the ground, and sacred tripods glow
With wreaths of palms, to bind the Victor's brow."
(Translation by Pitt.)

The rusticated podium or base of Piræus stone, 9 feet 6 inches square, supports a circular structure of 6 feet internal diameter, and having Corinthian columns supporting an entablature crowned by a marble dome, ornamented with sculptured scrolls, and terminating in a floral ornament which formerly supported the bronze tripod. Between the columns are circular wall panels, but the interior was apparently never intended for use, as there was no provision for the admission of light. The total height of the structure is 34 feet. The basement is slightly rusticated, by means of sinkings at the joints, and is 13 feet in height to the top of the cornice. The circular colonnade has six Corinthian

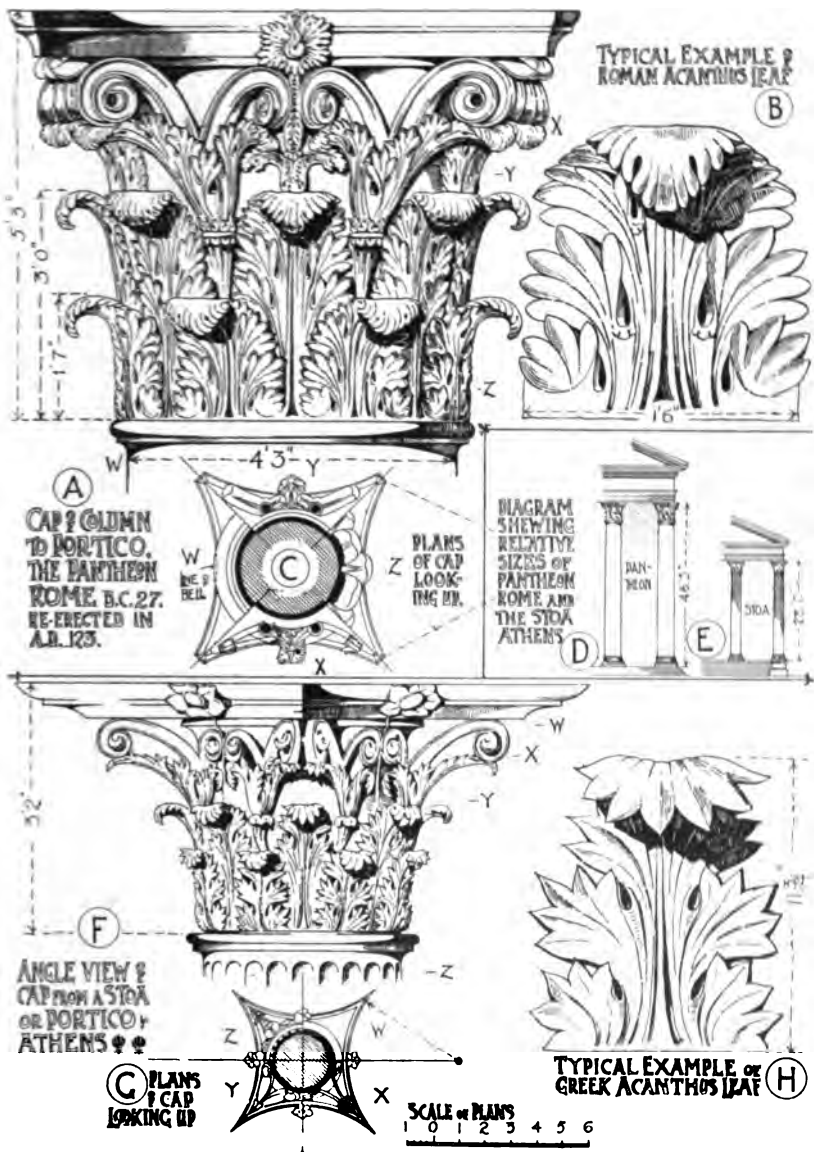
columns 11 feet 7 inches high, projecting rather more than half their diameter. These rest on a secondary base encircling the whole building, and are complete in themselves, as shown on No. 38 E. Between the columns are panels, the upper part of each originally being sculptured in bas-relief.

The flutings of the columns are peculiar in that they terminate at the top in the form of leaves. The capitals, 1 foot 7 inches high, bear some resemblance to those of the half-columns of about the same date in the cella of the Temple of Apollo-Didymæus, at Miletus. On the inside, where they could not be seen they were left unfinished. The foliage is different from the later type in having a lower row of sixteen small lotus leaves, then a single row of very beautiful acanthus leaves, having between them an eight-petalled flower resembling an Egyptian lotus. The channel just above the foliated flutings of the shaft probably had a bronze collar, although the Greeks were accustomed to these sinkings under their Doric capitals. The architrave and frieze are in one block of marble, the former bearing an inscription, and the latter being sculptured to represent the myth of Dionysos and the Tyrrhenian pirates. The cornice is crowned with a peculiar honeysuckle scroll, forming a sort of frilling, used instead of a cyma-recta moulding, and probably an imitation of ante-fixæ terminating the joint tiles, as in Greek temples. The outside of the cupola is beautifully sculptured to imitate a covering of laurel leaves, and from the upper part branch out three scrolls (Nos. 42 A, 44 D), the upper ends of which are generally supposed to have supported dolphins. The central portion is carried up as a foliated and moulded stalk or helix in conjunction with acanthus leaves branching in three directions, having on their upper surfaces cavities in which the original tripod feet were placed.

The **Tower of the Winds, Athens** (B.C. 100-35) (Nos. 28 K, L, 43 B, D, E), also known as the Horologium of Andronikos Kyrrhestes, was erected by him for measuring time by means of (*a.*) a clepsydra or water-clock internally; (*b.*) a sun-dial externally; and it also acted as a weathercock. The building rests on a stylobate of three steps, and is octagonal, each of its eight sides facing the more important points of the compass.

It measures 22 feet 4 inches internally, and on the north-east and north-west sides are porticos having Corinthian columns. From the south side projects a circular chamber, probably used as a reservoir for the water-clock. The interior has a height of 40 feet 9 inches, and the upper part is provided with small fluted Doric columns resting on a circular band of stone. The Corinthian columns, 13 feet 6 inches high, to the external porticos are fluted. They have no base and the capitals are of a plain unusual type, without volutes, the upper row of leaves resembling those of the palm. The wall of the octagonal structure is quite plain for a

COMPARATIVE EXAMPLES: GREEK & ROMAN CORINTHIAN CAPITALS



height of 29 feet, with the exception of the incised lines forming the sun-dial, above which on each face are sculptured figures, boldly executed to represent the eight principal winds (Nos. 43 D, E). The roof is formed of twenty-four equal sized blocks of marble, and was surmounted by a bronze Triton (see Vitruvius, I., chapter vi.).

The **Olympieion** (Temple of Jupiter Olympius), **Athens** (No. 18 J), stands on the site of an earlier Doric temple commenced by Pisistratus, in B.C. 530. It was commenced by Antiochus Epiphanes of Syria in B.C. 174, Cossutius, a Roman architect, being employed; hence it is often designated Roman architecture. It remained incomplete, and in B.C. 80 Sulla transported some of the columns to Rome for the Temple of Jupiter Capitolinus, as related by Pliny. The building was completed by Hadrian in A.D. 117, but only fifteen columns of the original one hundred and four forming the peristyle are standing. It was dipteral-octastyle on plan, having twenty columns on the flanks, and occupied an area of 354 feet by 154 feet (equalling the Hypostyle Hall at Karnac), and was placed in the centre of a magnificent peribolus or enclosure, measuring 680 feet by 424 feet, part of the retaining wall of which still remains at the south-east corner. It is described by Vitruvius as hypæthral, but it was unfinished in his time. The peristyle columns were 6 feet 4 inches in diameter, and had a height of 56 feet—a proportion of about one to nine. The capitals (No. 43 A) are very fine specimens of the Corinthian order, and appear to date from both periods mentioned above.

GREEK THEATRES.

The Greek theatre was generally hollowed out of the slope of a hill near the city, and was unroofed, the performances taking place in the day time. In plan (No. 34) it was usually rather more than a semicircle, being about two-thirds of a complete circle. The auditorium consisted of tiers of marble seats, rising one above the other, often cut out of the solid rock. Those spectators who sat at the extremities of the two wings thus faced towards the orchestra, but away from the stage. The Greek theatre, which was constructed more for choral than dramatic performances, had a circular "orchestra" or dancing place (corresponding to the stalls and pit of a modern theatre) in which the chorus chanted and danced.

The orchestra was the "germ" of the Greek theatre.

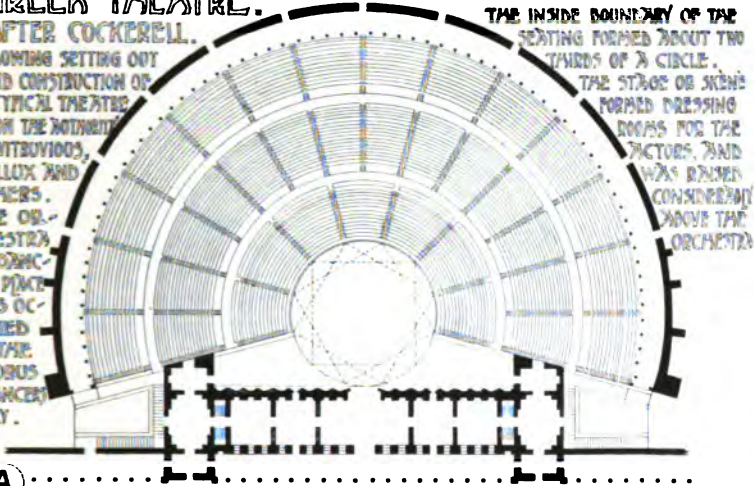
The stage was known as the *logeion* or "speaking place," its back-wall being the *skéné* (= booth or tent for changing in), the latter name being preserved in the modern word "scene." The actors being few, the stage consisted of a long and narrow platform, with permanent background. To what height above the level of

COMPARATIVE EXAMPLES OF GREEK AND ROMAN THEATRES.

GREEK THEATRE.

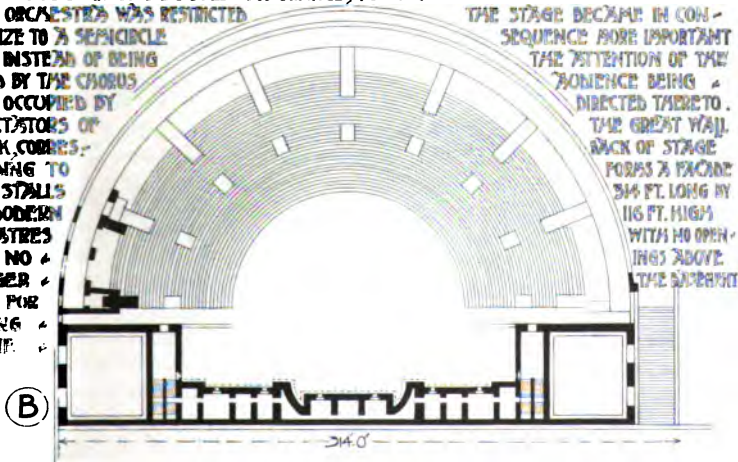
AFTER COCKERELL.

SHOWING SETTING OUT AND CONSTRUCTION OF A TYPICAL THEATRE UPON THE SLOPES OF VITRUVIUS, POLLUX AND OTHERS. THE ORCHESTRA OR DANCING PLACE WAS OCCUPIED BY THE CHORUS & DANCERS ONLY.



ROMAN THEATRE AT ORANGE, SOUTH OF FRANCE.

THE ORCHESTRA WAS RESTRICTED IN SIZE TO A SEMICIRCLE AND INSTEAD OF BEING USED BY THE CHORUS WAS OCCUPIED BY SPECTATORS OF BANK CORRES- PONDING TO THE STALLS OF MODERN THEATRES AND NO LONGER USED FOR ACTING ALONE.



the orchestra this platform was raised is a question that has been much debated in recent years. The most probable view seems to be the following:—(1.) In pre-Æschylean drama, before regular theatres were made, an actor mounted on a table, probably the table-altar of the god Dionysos, and held a dialogue with the dancers or chorus. The rude table-stage illustrated on some vases from South Italy may represent a local retention of this primitive custom. (2.) In the fifth century B.C. no direct evidence is available; but a low wooden stage is practically certain, connected by means of a ladder with the *orchestra*. (3.) The fourth century is the earliest period in which there is monumental evidence. At Megalopolis a platform of wood from 3 feet 3 inches to 4 feet 6 inches high appears probable, with a stone colonnade behind it. At Epidauros there was a wooden floor supported by a wall 12 feet high. (4.) In Hellenistic and Roman times, Vitruvius tells us, the Greek stage was 10 to 12 feet high, and this statement is borne out by many extant examples. The **Theatre of Dionysos, Athens**, (No. 17), completed B.C. 340, in which thirty thousand spectators could be accommodated, is the prototype of all Greek theatres, and was the one in which the plays of the great Athenian dramatists were produced.

The **Theatre, Epidauros**, was constructed by the architect Polycleitos, and is the most beautiful as well as the best preserved example extant. The circle of the orchestra is complete, and is about 66 feet across, the entire theatre being 378 feet in diameter. Thirty-two rows of seats forming the lower division are separated by a broad passage (*diazoma*) from twenty rows above. Twenty-four flights of steps diverge as radii from bottom to top.

THE PALACES AND DOMESTIC BUILDINGS.

The excavations lately carried out by Dr. Arthur Evans at Knossos in Crete (page 54), and those by the Italians at Phæstos, in the same island, have revealed palaces more remote in date than the Mycenæan period, to which is given the name "Minðan." The excavations of the **Palace of King Minos, Knossos**, show the remains of a remarkable structure laid out on a plan afterwards used in the Roman palaces and camps. This building is believed to date from about B.C. 2000, and was unfortified. Underneath the upper palace were found the remains of an earlier one, which is believed to date from about B.C. 3000. About five acres of this remarkable structure have been uncovered. The apartments, round a central oblong courtyard (about 180 feet by 90 feet), are constructed in several stories, which are reached by staircases. Some remarkable wall frescoes and colored plaster ceilings, an olive press with huge oil jars, and the remains of a system of drainage, with terra-cotta drain pipes, were discovered.

At Tiryns, situated by the sea coast to the south-west of Athens, and at Mycenæ, remains have been discovered of recent years by Drs. Schliemann and Dörpfeld which are of the greatest interest in showing the general arrangement of other palaces (No. 15 F).

At Mycenæ, flights of steps lead to an outer courtyard, from which, by traversing a portico and vestibule, the *megaron*, or principal men's apartment, is reached. From this megaron, surrounded by a roof and open to the sky in the centre, were reached other chambers, whose uses are not defined. The women's chambers are considered by some authorities to be planned so as to afford the greatest seclusion, while others, notably Prof. Ernest Gardner, hold that little or no attempt was made at seclusion, and bring strong evidence to bear from literary authorities, principally from Homer. The plans of domestic buildings appear to have resembled, on a smaller scale, the general arrangement of the palaces as is seen in the remains at Athens, Delos, and Priene, dating from the Hellenic period. They appear to have been of one story only, and grouped around an internal courtyard or peristyle. Vitruvius (Book VI., chapter x.) refers to their general arrangement, when he says there was no atrium but a peristylum with a portico on three sides, and chambers grouped around. It is generally held that the Græco-Roman houses of Pompeii may be taken as typical examples (No. 65 A, B), and these may be referred to on page 162.

PROPYLÆA.

Propylæa were erected as entrance gateways to many of the principal cities of Greece, and those at Athens, Epidauros, Sunium, Eleusis, and Priene are the best known.

The **Propylæa, Athens** (No. 26), were erected under Pericles by the architect Mnesicles in B.C. 437. It is at the west end of the Acropolis (No. 17), being reached by a long flight of steps from the plain beneath. It has front and rear hexastyle Doric porticos at different levels, giving access to a great covered hall, having a wide central passage bounded by two rows of Ionic columns, and having at its eastern end a wall in which are five doorways of different heights. On either side of the western entrance portico are projecting wings having three smaller Doric columns, that to the north being used as a picture gallery, while that to the south was never completed. The general external appearance is well shown in the restored view (No. 1).

TOMBS.

The most important from an architectural point of view are found in Asia Minor. The **Harpy Tomb, Xanthos**, in Lycia

(B.C. 550) is an early or archaic example, with sculptured reliefs, from which the tomb is named, and is now in the British Museum. The **Nereid Monument** (B.C. fifth century), **Xanthos**, is generally considered to have been erected as a trophy monument. Important fragments discovered by Sir Charles Fellows, and the model in the British Museum, indicate a building consisting of a central chamber or cella surrounded by a colonnade of fourteen Ionic columns, the whole elevated on a basement standing on two steps. The sculptured figures of nereids or marine nymphs, from which the building takes its name, originally stood between the columns and had under them marine attributes. This monument has important sculptured friezes, acroteria and pediments. The **Mausoleum, Halicarnassos** (No. 35), was the most famous tomb. It was erected to the King Mausolos (B.C. 353) by his widow Artemisia, and consisted of a square plinth supporting a tomb-chamber, which was surrounded by Ionic columns and surmounted by a pyramidal roof with a marble quadriga and group of statuary at its apex (see page 108).

The architects were Satyros and Pythios, and Scopas was the superintendent sculptor. Portions of the frieze, the statue of Mausolos and Artemisia, with the horses and chariots of the quadriga, and other fragments are in the British Museum.

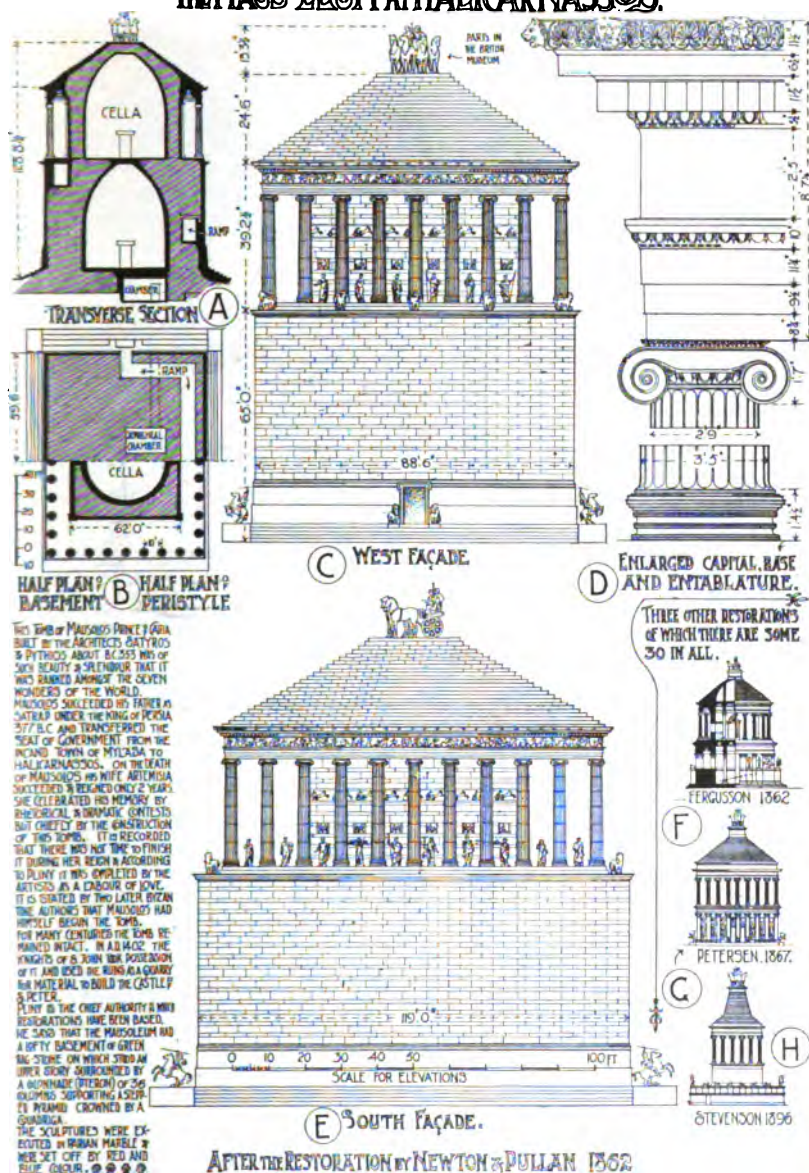
The **Lion Tomb, Cnidus** (No. 36), also consists of a square basement surrounded by a Doric colonnade of engaged columns surmounted by a stepped roof, and crowned with a lion, now in the British Museum. The interior was circular and roofed with a dome in projecting horizontal courses.

The **Sarcophagus** from a Tomb at Cnidus (No. 36 E, G), is an interesting and beautiful example of a smaller type, as is also the **Tomb of the Weepers** (B.C. fourth century) (No. 36 H), found at Sidon (now in the Museum at Constantinople), which is executed in the form of a miniature Ionic temple, having sculptured female figures between the columns. The so-called **Alexander Sarcophagus** (B.C. fourth century), found near Sidon, and now in the Constantinople Museum, is the most beautiful and best preserved of all. It is so-called because its sides, which are of marble, represent battle and hunting scenes in which Alexander was engaged, and is especially remarkable for the colored work which is still preserved on the sculpture. There are also important examples of rock-cut tombs at Cyrene (North Africa) and Asia Minor (No. 41 F), and reference has also been made to the Lycian Tombs (page 37), of which the two brought to London by Sir Charles Fellows, in 1842, are now in the British Museum.

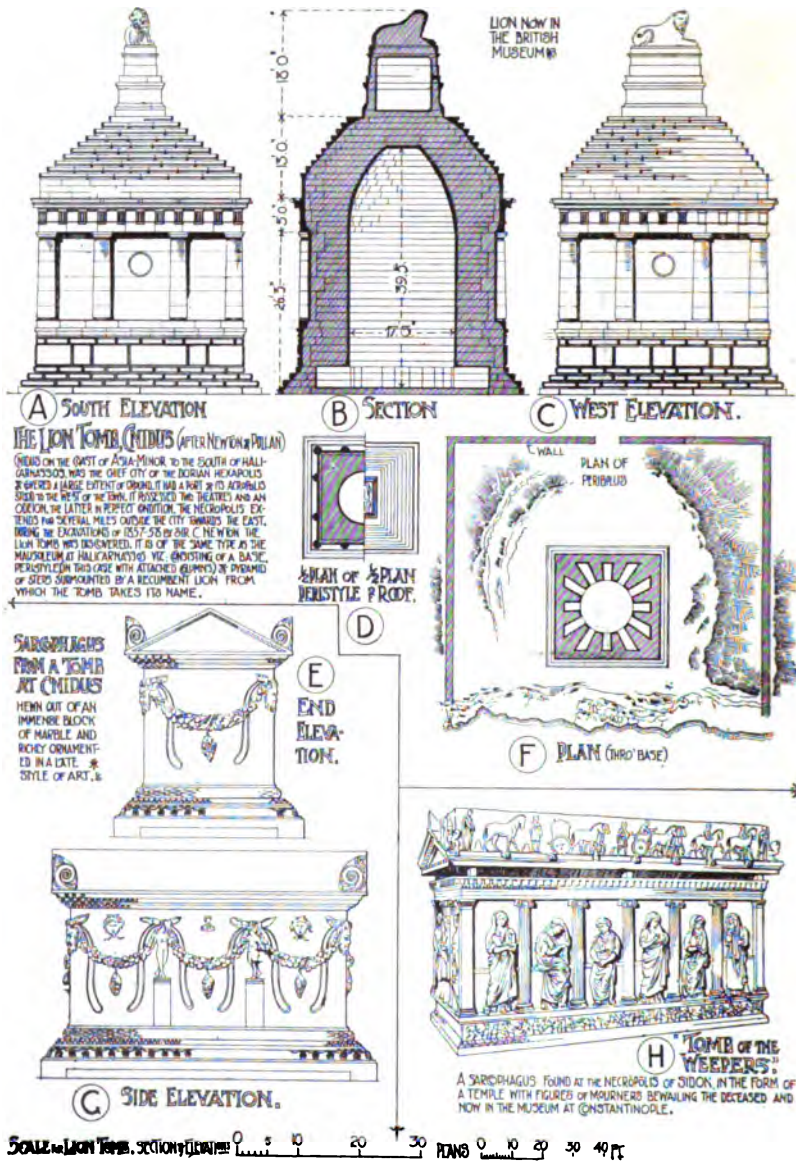
The **Stele** was a class of tombstone in the design of which the Greeks excelled. It consisted of a flat stone placed upright in the ground like a modern tombstone and crowned with the

GREEK EXAMPLES. XIV.

THE MAUSOLEUM AT HALICARNASSOS.



GREEK EXAMPLES. XV.



Anthemion design, the lower portion having panels in bas-relief (Nos. 42 H, 43 F, and 44 E). Many of these can be seen in the British Museum.

AGORA.

The agora, or open meeting-places for the transaction of public business, were large open spaces surrounded by stoæ or open colonnades, giving access to the public buildings, such, as temples, basilicas, stadion (racecourse), and the palæstræ or gymnasia.

PUBLIC BUILDINGS.

Stoæ or Colonnades were formed for the protection of pilgrims to the various shrines, as connections between public monuments, or as shelters adjoining open spaces, and were an important class of structure. The most important of these were the *Stoa Pacile*, or Echo Colonnade, about 300 feet by 30 feet, at Olympia; two at Epidauros—one two stories in height—acting as shelters for the patients who came to be healed at the shrine of Æsculapius; three examples at Delphi; and the remarkable example near the Propylæa at Delos, known as the "Sanctuary of the Bulls" (No. 42).

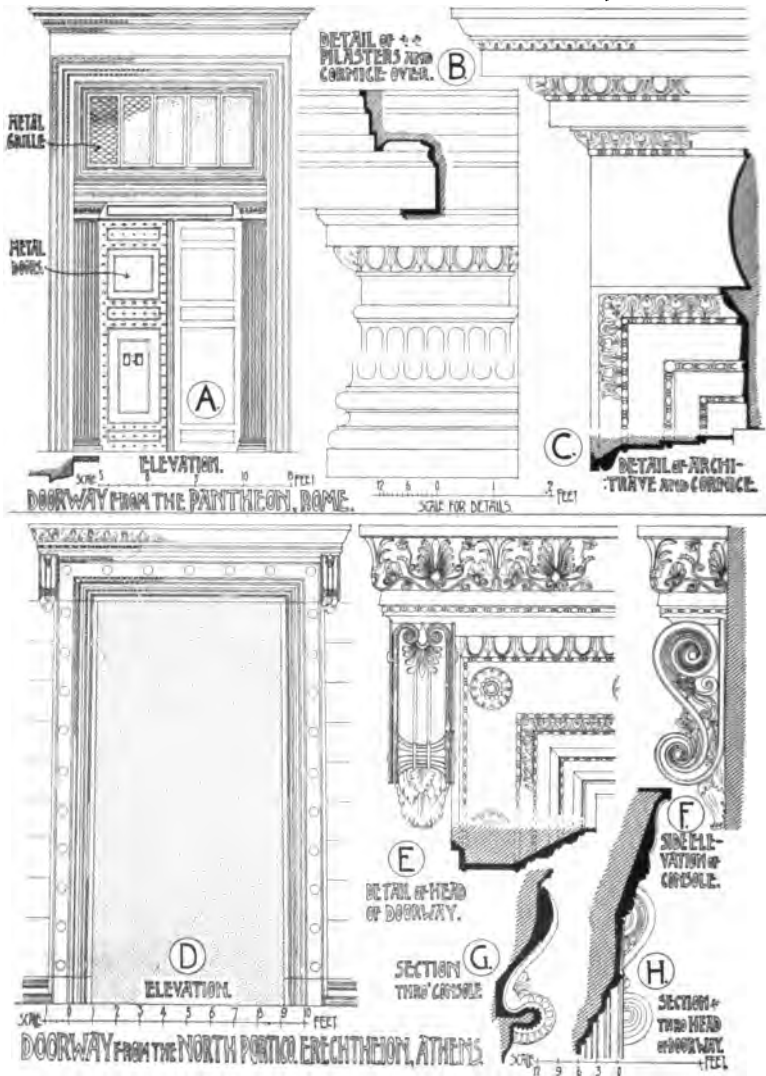
The **Stadion** was the foot racecourse found in cities where games were celebrated, and it came eventually to be used for other athletic performances. It was usually straight at one end, the starting-place, and semicircular at the other, and was always 600 Greek feet in length, although the foot varied, and was sometimes planned with the semicircular end on the side of a hill, so that the seats could be cut out of the sloping sides, as at Olympia, Thebes, and Epidauros, or else constructed on the flat, as at Delphi, Athens, and Ephesus. The *Stadion at Athens*, now completely restored, was commenced in B.C. 331, and finished by Herodes Atticus, and accommodates between 40,000 and 50,000 people. The Hippodrome was a similar type of building used for horse racing.

The **Palæstra** or gymnasia, as at Olympia and Ephesus, were the prototypes of the Roman thermæ, and comprised exercise courts, tanks for bathers, exedræ or recesses for lectures, with seats for spectators.

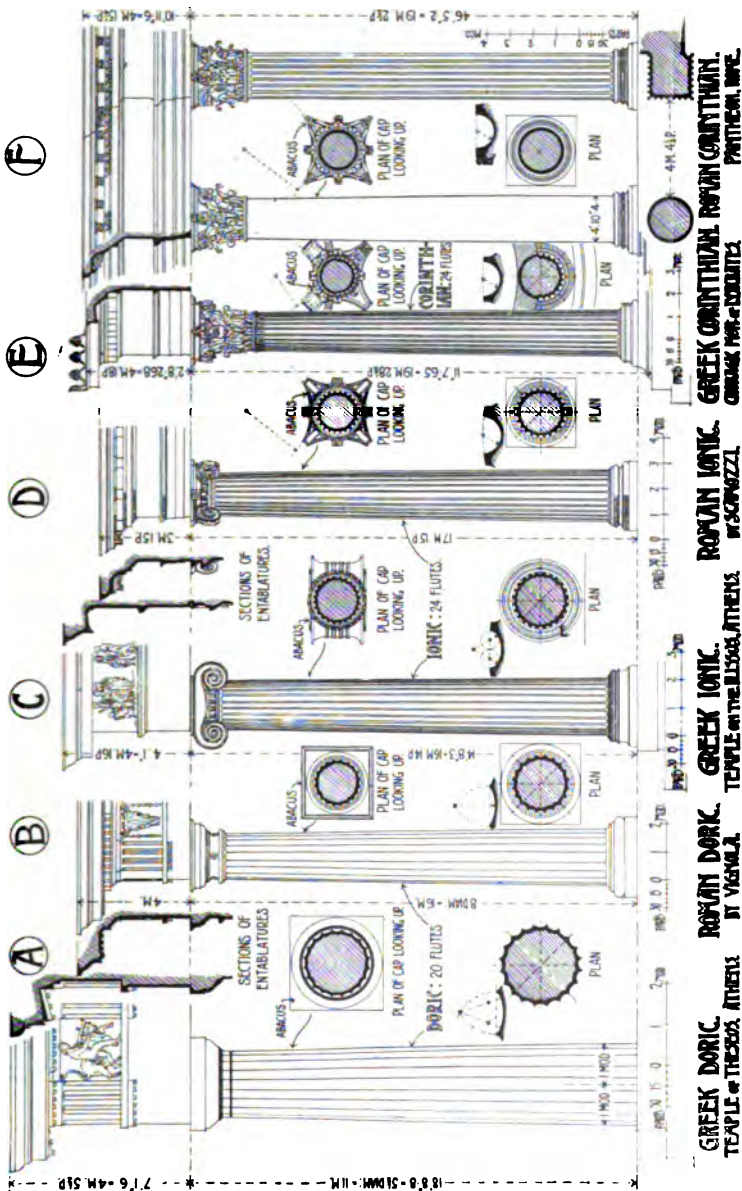
4. COMPARATIVE.

A. **Plans** (Nos. 18, 20 E, and 27 C).—These were simple, well judged, nicely balanced, and symmetrical, exceptions to the latter being the Erechtheion (No. 18 M), and the Propylæa (No. 18 N), at Athens, and probably the private houses. Plans involving

COMPARATIVE EXAMPLES OF GREEK AND ROMAN DOORWAYS.



COMPARATIVE DIAGRAMS OF THE GREEK AND ROMAN ORDERS OF ARCHITECTURE.



the use of the orders were rarely extensive or complicated, being generally very regular; yet certain departures were made from the general rules, either for the purposes of effect or from necessity, as when columns were placed nearer together at the angles of Doric temples (No. 16 A), and as in the central intercolumniation at the Propylæa, Athens (No. 26), which was wider than the others, probably for the passage of chariots.

Greek temples might be described as Egyptian turned inside out, the courtyard, porticos, and columned halls being replaced by a small cella, usually colonnaded on every face. The relations and proportions of these columns constitute the charm of Greek exteriors.

Circular planning was also adopted, as in the Tholos at Epidauros (No. 18 K), the theatres (Nos. 17 and 34 A), and choragic monuments (No. 28 J), and octagonal planning, as in the Tower of the Winds at Athens (No. 28 K, L).

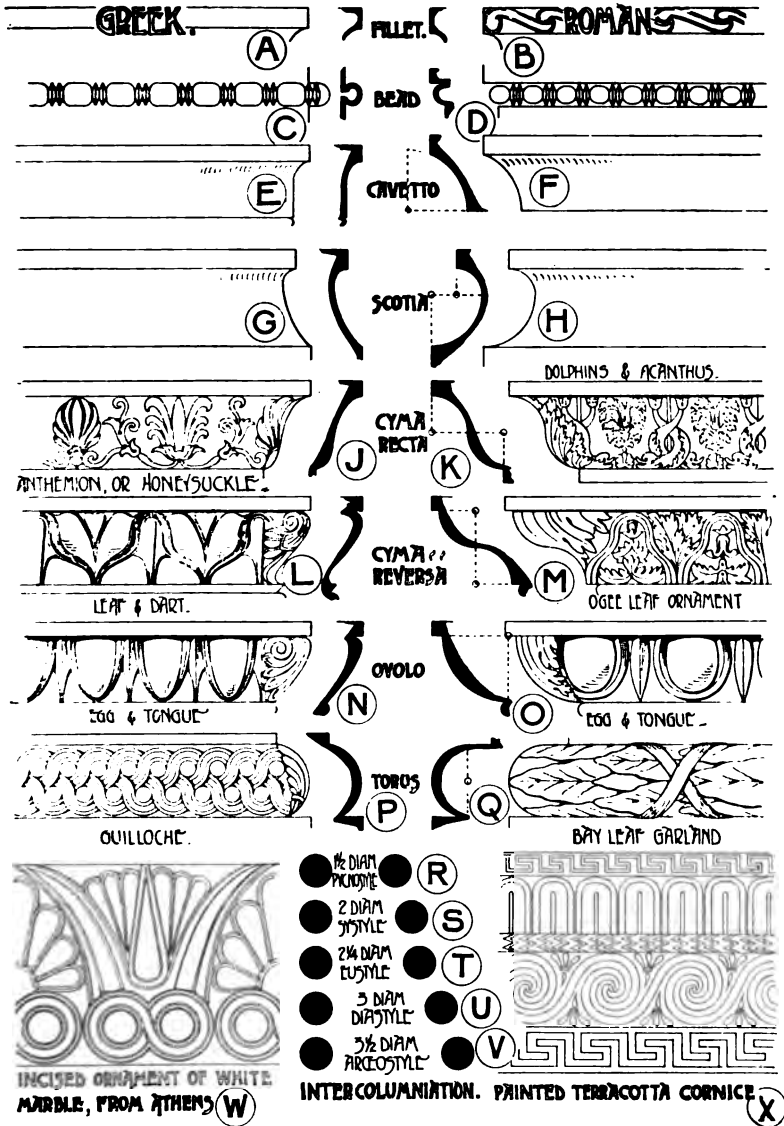
B. Walls.—The construction of walls was solid and exact. No mortar was used, the joints being extremely fine, and the finished surface of the walls was obtained by a final rubbing down of the surface by slaves. The use of marble was accountable for the fine smooth face and exact jointing displayed. Hollow wall construction in the entablature was practised at the Parthenon, to lessen the weight upon the architraves, and perhaps for economy of material (No. 16). In temples the cella walls were mostly masked behind columns (No. 18). The base of a temple was always well marked and defined by steps, giving a real and apparent solidity to the structure (Nos. 16 A and 24). The top of the walls was always finished by a cornice, the use of intermediate cornices being almost unknown.

No towers were used in Greek architecture except in the case of fortified walls, the lofty mausoleum at Halicarnassos (No. 35) and the Lion Tomb at Cnidus (No. 36), both in Asia Minor, and of pyramidal shape, being the nearest approach to tower form (page 94).

C. Openings.—Greek architecture was essentially a trabeated style, all openings being spanned by a lintel, and being therefore square-headed. The trabeated construction necessitated great severity in treatment; the supports were of necessity close together, because stone lintels could not be obtained beyond a certain length. The sides of openings sometimes incline inwards, as in the doorway to the Erechtheion (No. 37 D). Relief to the façades of temples was obtained by the shadow of the openings between the columns (No. 22).

D. Roofs.—These coincided with the outline of the pediment. In temples they were sometimes carried by internal columns or by the walls of the cella, and were framed in timber and covered with marble slabs (Nos. 16 D, 20 H). Internal ceilings were

COMPARISON OF GREEK AND ROMAN MOULDINGS. I.



probably also framed into deep coffers, as were the marble lacunaria of the peristyles (No. 21 B, C, E).

E. Columns.—As the temples were usually one story high, the columns with their entablature comprise the entire height of the building, except in some interiors, as the Parthenon (Nos. 23, 25), the Temple of Neptune, Pæstum (No. 28 B), and elsewhere, where a second range of columns was introduced into the cella to support the roof.

The orders having been fully dealt with on pages 59, 77, 85, are merely summarized as follows :—

The *Doric* (No. 19) is the oldest and plainest of the orders, the finest examples being the Parthenon and the Theseion (page 67).

The *Ionian* (No. 29) was more ornate, and is best seen at the Erechtheion (page 81), and the Temple on the Ilissus (page 79).

The *Corinthian* was little used by the Greeks, the best known examples being the monument of Lysicrates at Athens (Nos. 32, 38 A), and the Temple of Jupiter Olympius (No. 43 A), upon which the Romans founded their own special type.

Caryatides (No. 42 G) and Canephora (No. 42 F), or carved female figures which were sometimes used in the place of columns, as at the Erechtheion, Athens (No. 30), and are of Asiatic origin.

F. Mouldings.—Refer to illustrations of Greek mouldings compared with Roman given on Nos. 39 and 40. Mouldings are the means by which an architect draws lines upon his building, and a true knowledge of the effect of contour is best obtained from actual work rather than from drawings, the examples at the British Museum being available for this purpose.

The principal characteristic of Greek mouldings was refinement and delicacy of contour due to the influence of an almost continuous sunshine, a clear atmosphere, and the hard marble in which they were formed.

These mouldings had their sections probably drawn by hand, but approach very closely to various conic sections, such as parabolas, hyperbolas, and ellipses.

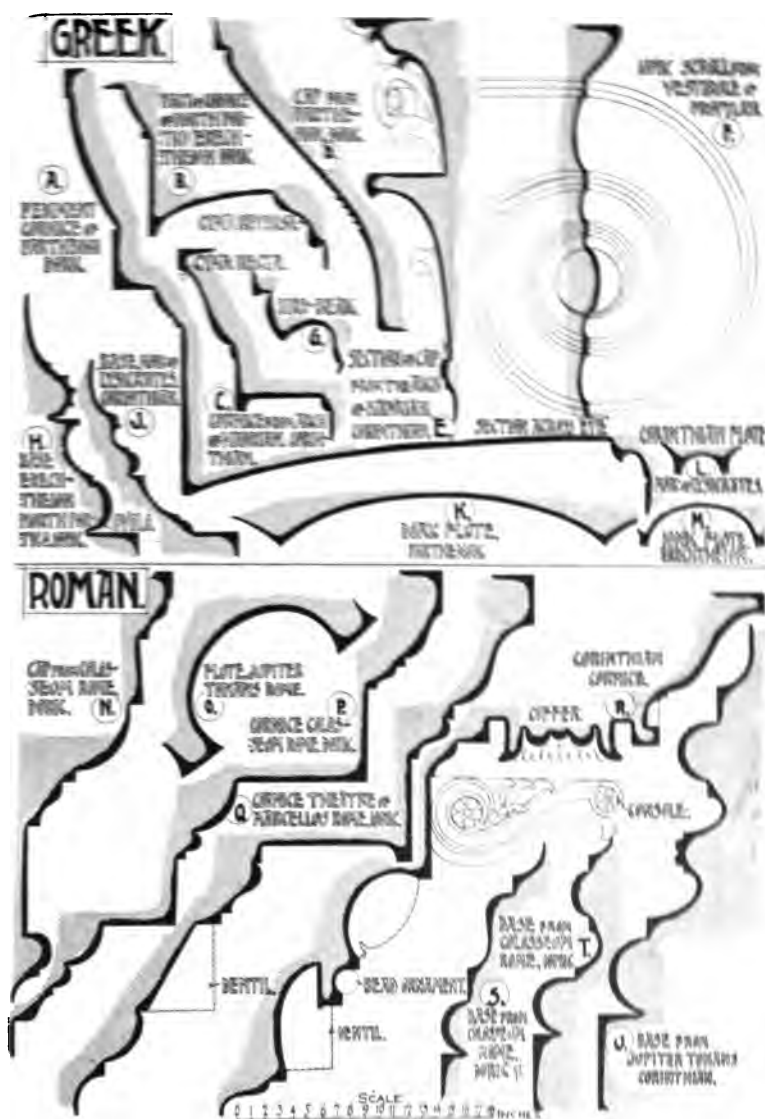
As a general rule the lines of the enrichment or carving on any Greek moulding correspond to the profile of that moulding. This is a rule which was rarely departed from, and therefore, is worthy of notice, for the profile of the moulding is thus emphasized by the expression in an enriched form of its own curvature.

The examples given from full-size sections taken at the Parthenon, the Erechtheion, and elsewhere, may be studied on No. 40.

The following classified list gives the most important mouldings :—

- (a.) The *cyma-recta* (Hogarth's "line of beauty"). When enriched it is carved with the honeysuckle ornament, whose outline corresponds with the section (No. 39 J).

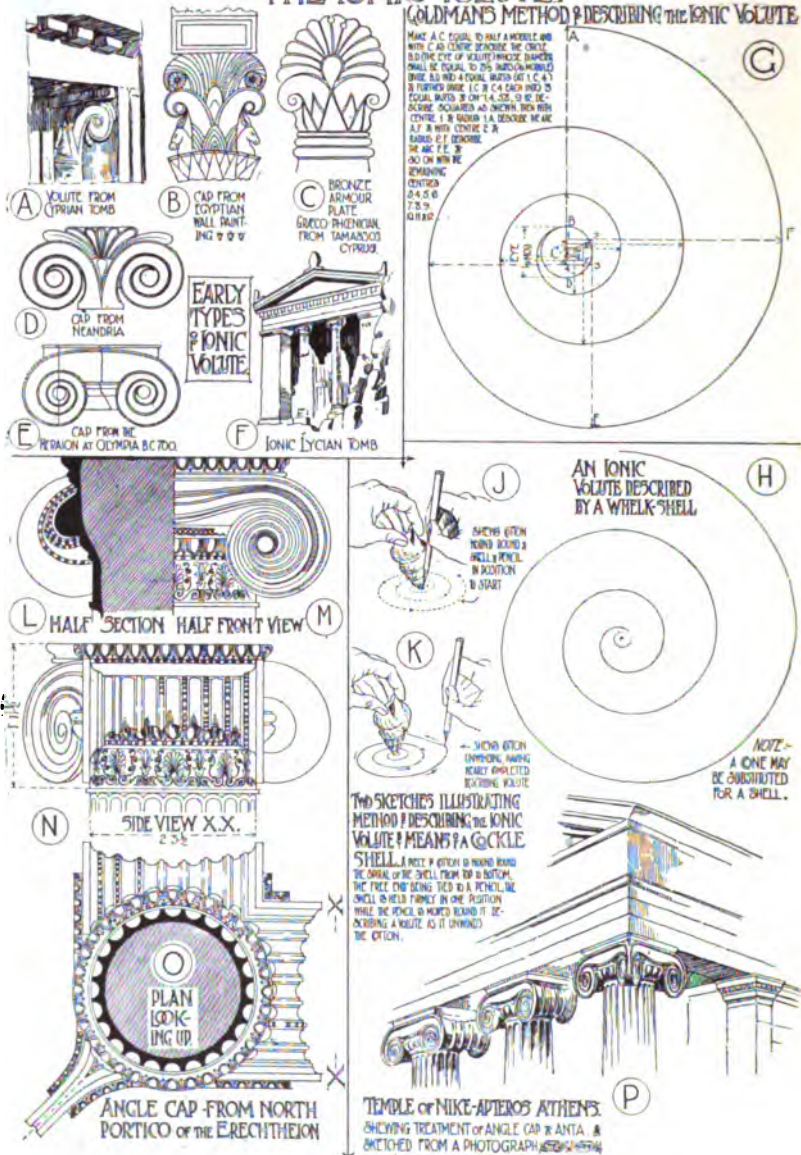
COMPARISON OF GREEK AND ROMAN MOULDINGS. II.



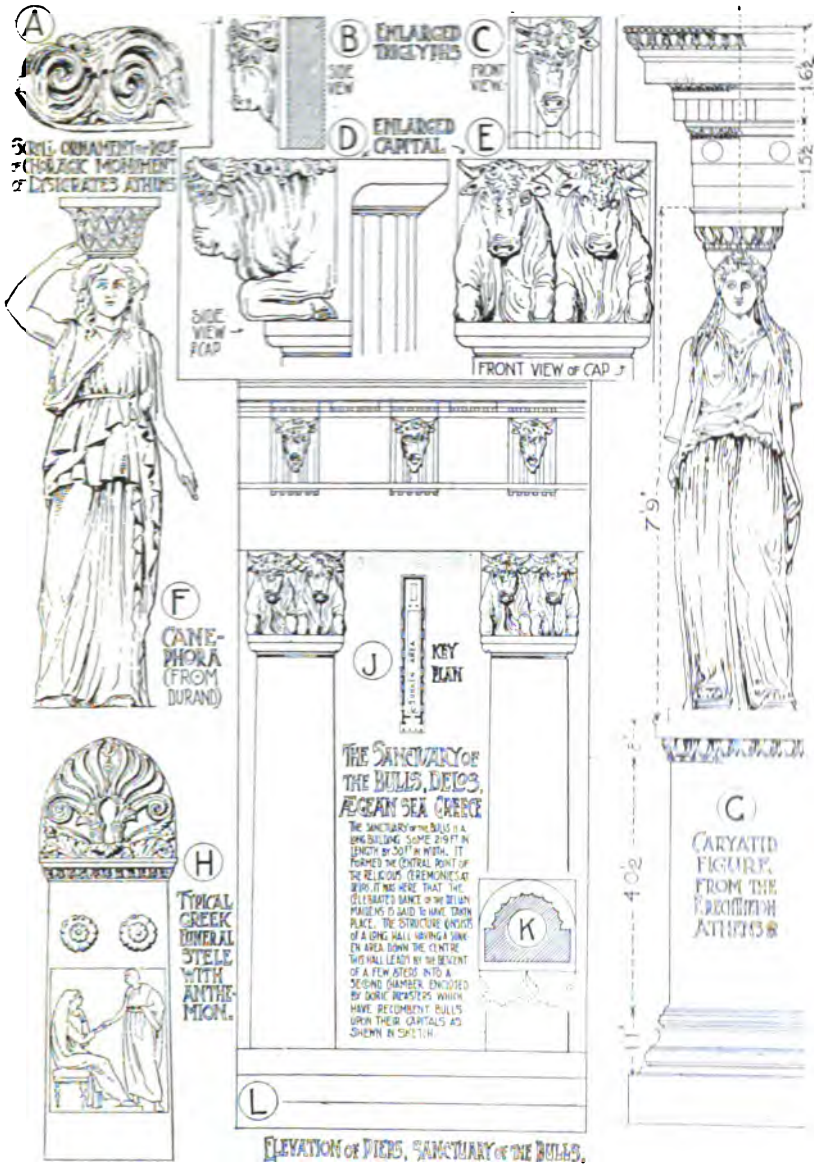
GREEK ORNAMENT. I.

THE IONIC VOLUTE

GOLDMAN'S METHOD OF DESCRIBING THE IONIC VOLUTE



GREEK ORNAMENT. II.



- (b.) The *cyma reversa*. When enriched it is carved with the water-lily and tongue (No. 39 L).
- (c.) The *ovolo* (egg-like). When enriched it is carved with the egg and dart, or egg and tongue ornament (No. 39 N).
- (d.) The *fillet*, a small plain face to separate other mouldings (No. 39 A). This is usually without enrichment.
- (e.) The *bead* serves much the same purpose as the fillet, and approaches a circle in section. When enriched it is carved with the bead and reel or with beads, which in fact gave the name to the moulding (No. 39 C).
- (f.) The *cavetto* is a simple hollow (No. 39 E).
- (g.) The *scotia* is the deep hollow occurring in bases, and is generally not enriched (No. 39 G).
- (h.) The *torus* is really a magnified bead moulding. When enriched it is carved with the guilloche or "plat" ornament, or with bundles of leaves tied with bands (No. 39 P).
- (i.) The *bird's-beak* moulding occurs frequently, especially in the Doric order, and giving a deep shadow is very suitable for the English climate (No. 40 G).
- (j.) The *corona* (No. 17 A), the deep vertical face of the upper portion of the cornice. It was frequently painted with a Greek "fret" ornament.

G. Ornament (Nos. 41, 42, 43, and 44).—The acanthus leaf (Nos. 33 H, 44 J) and scroll play an important part in Greek ornamentation. The leaf from which these were derived grows wild in the south of Europe, in two varieties, viz.:—

- (i.) That with pointed and narrow lobes, V-shaped in section, giving a sharp crisp shadow, and known as the "acanthus spinosis" (No. 33 H);
- (ii.) That with broad blunt tips, flat in section, known as the "acanthus mollis" (No. 33 B).

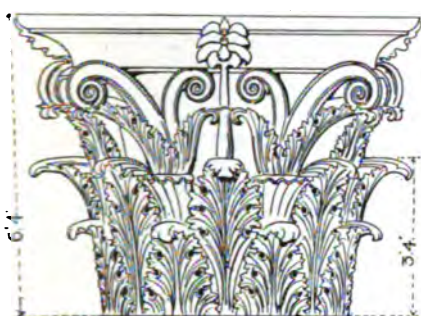
The Greeks usually preferred the former with deeply drilled-eyes, and the Romans the latter of these varieties.

The leaf was used principally in the Corinthian capital (Nos. 33 F, G, H, 43 A, B, C), and is also found in the crowning finial of the Choric Monument of Lysicrates (No. 44 D). The scroll which accompanies the leaf and acts as a stalk is usually V-shaped in section with sharp edges.

The *anthemion*, *palmette* or *honeysuckle* ornament, was a favourite decoration of the Greeks, and was largely used as an ornamentation on Anta Caps (No. 44 A, F), cyma-recta mouldings (No. 39 J), and round the necks of columns, as in the Erechtheion (No. 41 N). It is also frequently employed as an ornamentation to the tops of stele-heads and ante-fixæ (Nos. 42 H, 43 F, and 44 E, N).

The sculpture employed was of the highest order, and has never been excelled. It may be divided into:—(a.) *Sculpture appertaining to buildings*, including friezes (as at the Parthenon, the Temple

GREEK ORNAMENT. III.



A CAP FROM THE TEMPLE OF JUPITER OLYMPIUS ATHENS.



SCALE FOR CAPS



D SCULPTURE FROM THE TOWER OF THE WINDS ATHENS REPRESENTING THE EAST WIND (A FRIEND TO VEGETATION)



E SCULPTURE FROM THE TOWER OF THE WINDS ATHENS REPRESENTING THE NORTH WIND (COLD, FIERCE & STORMY)



F HALF ELEVATION OF STELE HEAD WITH DOUBLE HONEY-SUCKLE ORNAMENT BEING A BEAUTIFUL INSTANCE OF THIS SOMEWHAT RARE TREATMENT.

of Ægina, the Heraion, Olympia, and the Temple of Apollo Epicurius, Bassæ), the tympana of the pediments, the acroteria at the base and summit, the sculptured metopes in the Doric frieze, and the Caryatides, as at the Erechtheion (Nos. 30 G, 42 G, 44 M); mention might also be made of the series of magnificent figure sculptures to the Altar of Zeus at Pergamon in Asia Minor, of which the great frieze or "Gigantomachia" is now in the Berlin Museum. (b.) *Sculptured reliefs* as seen on stele-heads (No. 42 H). (c.) *Free-standing statuary*, consisting of groups, single figures, bigas (two-horse chariots), or quadrigas (four-horse chariots) (page 94).

Color was largely used on buildings, and many traces are left, as already mentioned (page 53). In many instances the stonework, as in the Temples at Pæstum and in Sicily, brickwork, and in some instances marble, were covered with carefully-prepared cement to receive wall paintings or color decoration, which appears to have been almost universal, especially in buildings of the Doric order. This cement casing was also capable of a high polish, and Vitruvius mentions that well-polished stucco would reflect like a mirror.

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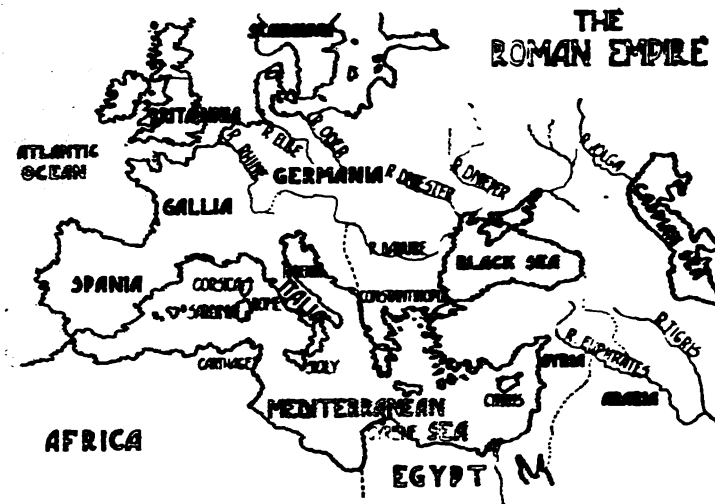
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The student should visit the Greek Court at the Crystal Palace for the splendid model of the Parthenon façade, and also the British Museum for actual fragments of the sculptures from the Temples.



45.

ROMAN ARCHITECTURE.

"Immortal glories in my mind revive
 When Rome's exalted beauties I descry
 Magnificent in piles of ruin lie.
 An amphitheatre's amazing height
 Here fills my eye with terror and delight,
 That on its public shows unpeopled Rome,
 And held uncrowded nations in its womb;
 Here pillars rough with sculpture pierce the skies;
 And here the proud triumphal arches rise,
 Where the old Romans deathless acts displayed."

I. INFLUENCES.

i. **Geographical.**—The map (No. 45) will show that the sea coast of Italy, although the peninsula is long and narrow, is not nearly so much broken up into bays, or natural harbours, as the shore line of Greece, neither are there so many islands studded along its coasts. Again, although many parts of Italy are mountainous—the great chain of the Apennines running from one end of the peninsula to the other—yet the whole land is not divided up into little valleys in the same way as the greater part of Greece.

The Greek and Italian nations may therefore with fair accuracy

be compared as follows:—(a.) The Romans never became a seafaring people like the Greeks, nor did they send out colonists of the same description to all parts of the then known world. (b.) There were few rival cities in Italy at this period (a condition which was altered in after times, pages 230, 234, 405, 476), and the small towns, being less jealous of their separate independence, the Roman power could be built up by a gradual absorption of small states, a process that was never completed by Athens or Sparta. The position of Italy enabled her to act as the intermediary in spreading over the continent of Europe the arts of civilization.

ii. **Geological.**—The geological formation of Italy differs from that of Greece, where the chief and almost the only building material is marble. In Italy marble, terra-cotta, stone, and brick were largely used even for the more important buildings. In Rome the following materials were at hand:—*Travertine*, a hard limestone from Tivoli; *Tufa*, a volcanic substance of which the hills of Rome are mainly composed; and *Peperino*, a stone of volcanic origin from Mount Albano. Besides these, *Lava* and *Pozzolana*, derived from volcanic eruptions, and excellent *sand* and *gravel* were plentiful. The existence of *Pozzolana* (a clean sandy earth) found in thick strata in the district, gave the Roman a material which contributed largely to the durability of their architecture, for it has extraordinary properties of hardness, strength and durability, when mixed into concrete with lime. The walls were generally formed of concrete and were faced in a decorative way with brick, stone, alabasters, porphyries, or marbles of all kinds, hewn from countless Oriental quarries by whole armies of workmen. Roman architecture, as it spread itself over the whole of the then known world, was influenced naturally by the materials found in the various parts where it planted itself, but concrete, in conjunction with brick and stone casing or banding, was the favourite material; although in Syria, notably at Palmyra and Baalbec, and in Egypt the quarries supplied stones of enormous size, which were used locally.

iii. **Climate.**—The north has the climate of the temperate region of continental Europe; central Italy is more genial and sunny; while the south is almost tropical.

iv. **Religion.**—The heathen religion of ancient Rome being looked upon as part of the constitution of the state, the worship of the gods came eventually to be kept up only as a matter of state policy. The emperor then received divine honours, and may almost be described as the leader of the Pantheon of deities embraced by the tolerant and wide-spreading Roman rule. Officialism therefore naturally stamped its character on the temple architecture.

A list of the chief Roman deities is given on page 46.

v. **Social and Political.**—In early times three chief nations dwelt in the peninsula. In the central portion (or Etruria) lived

the Etruscans, probably an Aryan people, who appear to have been settled in Italy before authentic history begins, and who were great builders (page 119). In the south the Greeks had planted many colonies, which were included in the name of "Magna Græcia." The remainder of Italy (exclusive of Cisalpine Gaul) was occupied by tribes of the same Aryan race as the Greeks, and the common forefathers of both must have stayed together after they had separated from the forefathers of the Celts, Teutons and others. But long before history begins the Greeks and Italians had separated into distinct nations, and the Italians had further split up into separate nations among themselves. The common form of government in ancient Italy resembled that of Greece, consisting of towns or districts joined together in leagues. The government of Rome was effected firstly by chosen kings, aided by a senator and popular assembly, but about B.C. 500 it became Republican, and under Augustus Cæsar in B.C. 27 the Empire originated. The "Building Acts" of Augustus, Nero, and Trajan had considerable influence on the development in Rome.

vi. Historical.—The foundation of Rome is of uncertain date, but is generally taken at B.C. 750. The Republic engaged in many wars, conquering several Etruscan cities, but was defeated in B.C. 390, at the hands of the Gauls, who continued for some time to hold the northern part of Italy. About B.C. 343 began the Roman conquest of Italy, which was effected in about sixty years, and resulted in the dominion of a city over cities. Then came the wars with peoples outside Italy, Pyrrhus, King of Epirus, being first subdued. The first Punic war (B.C. 264–241) against Carthage, when brought to a conclusion, resulted in Sicily becoming the first Roman province.

The second Punic war (B.C. 218–201) was the most severe struggle in which the Romans had engaged, for Hannibal, the great Carthaginian general, entering Italy from Spain, defeated all the Roman armies, and maintained himself in Italy until recalled by a counter attack of the Romans, under Scipio, upon Carthage itself.

The third Punic war (B.C. 149–146) ended in the total destruction of Carthage, which, with its territory, became a Roman province in Africa. At the same time were effected the conquest of Macedonia and Greece, the latter becoming a province in B.C. 146, which induced the importation of Greek artists and works of art. Greece formed a stepping stone to Western Asia, which in turn gradually acknowledged the Roman power, till in B.C. 133 it also became a province. With the conquests of Spain and Syria, the Roman empire extended from the Atlantic ocean to the Euphrates, while Cæsar's campaigns in Gaul in B.C. 59, made the Rhine and the English Channel its northern boundaries. In B.C. 55 Cæsar crossed into Britain.

This tide of conquest swept on in spite of civil war at home, and eventually rendered the empire a political necessity owing to the difficulty of governing so many provinces under the previous system. On Pompey's defeat at Pharsalia, Julius Cæsar remained without a rival, but was murdered in B.C. 44. Then followed a period of great confusion lasting 13 years. The *Triumvirate*, consisting of Marcus Antonius, Caius Octavius (great nephew to Cæsar) and Marcus Æmilius Lepidus, were opposed to Brutus and Cassius, and eventually defeated them. On the defeat of Antony at Aktion, Augustus Cæsar (Julius Cæsar's nephew) was made emperor B.C. 27, and governed till his death, A.D. 41.

The Augustan age was one of those great eras in the world's history like that succeeding the Persian wars in Greece, the Elizabethan age in England, and the beginning of the nineteenth century in Europe, in which what seems a new spring in national and individual life calls out an idealizing retrospect of the past. The poets Virgil (B.C. 70-19), Horace (B.C. 65-8), Ovid (B.C. 43—A.D. 17), and Livy the historian (B.C. 59—A.D. 17), were all contemporaries. Following Augustus came a line of emperors, of whom Nero (A.D. 54-69), Vespasian (69-79), Trajan (98-117), Hadrian (117-138)—under whom the empire expanded to its greatest extent—Septimius Severus (193-211), Caracalla (211-217) and Diocletian (284-305) were the most active in architectural matters. Italy went out of cultivation and depended on imported corn. A turbulent populace, and the huge armies required to keep in check the barbarian tribes on every frontier, dominated the government. Emperors soon chosen were sooner murdered, and the chaos that gradually set in weakened the fabric of the empire.

Architecture then fell into complete decay until the vigorous efforts of Constantine (A.D. 306-337) did something for its revival, which in large measure was also due to a new force, Christianity, which had been growing up and which received official recognition under this emperor (page 176).

2. ARCHITECTURAL CHARACTER.

The Romans adopted the columnar and trabeated style of the Greeks, and joined to it the Arch, the Vault, and the Dome, which it is presumed they borrowed from the Etruscans, and this union of *beam and arch* is the keynote of the style in its earliest developments.

The Colosseum (Nos. 62 and 63) at Rome is a good example of this union in which the piers between the arches on the different stories are strengthened by the semi-attached columns which act the part of buttresses; thus becoming part of the wall, and no longer carrying the entablature unaided.

The arch thus used in a tentative manner along with the

classical column eventually came to be used alone, and through the basilica, was finally utilized in a pointed form in the construction of those magnificent vaulted Gothic cathedrals, which were erected in the Middle Ages.

Greek buildings (see page 102) were normally only one story in height, but owing to the varying needs of the Romans, buildings of several stories were erected by them. The orders, usually attached and superimposed, were chiefly decorative features ceasing to have their true constructive significance (No. 62 A).

The Thermæ or Baths, Temples, Amphitheatres, Aqueducts, Bridges, Tombs, Basilicas, and Fora, are all monuments of Roman greatness, showing great constructive and engineering ability combined with a power to use the materials at hand with the best possible results.

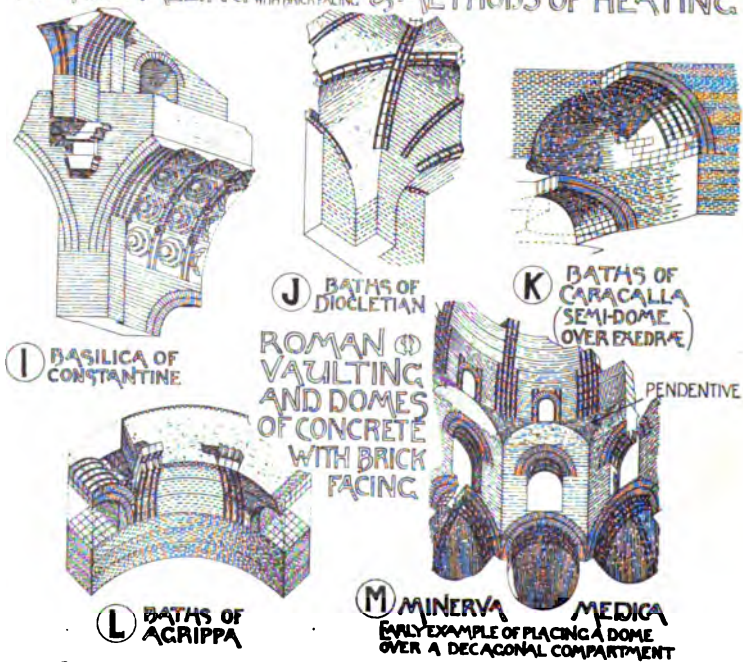
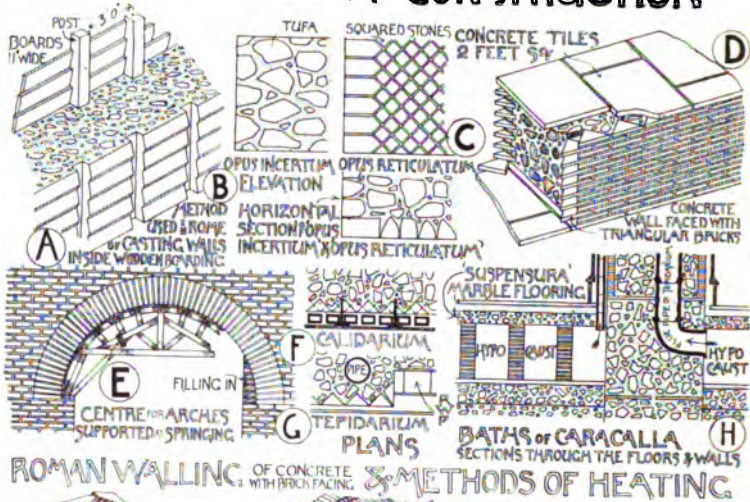
The Greek method of building with large blocks of stone, unconnected with mortar, was employed in the buildings of the Republic. The practical spirit of the Romans, however, urged them to make a more economical use of materials, and instead of composing the walls of their monuments of squared-blocks of stone, they inaugurated the use of concrete, a material consisting of small fragments of stone or quarry *débris* mixed with lime or mortar. These materials, not being special to any country, were used with success in every part of the Empire, and gave a similarity to all Roman buildings. The craftsmanship required, under the direction of the central authority, was perfectly simple; for only rough labour, both plentiful and cheap, was required for mixing the materials of which the concrete was made, and spreading it to form the walls. The structures could be erected by hands quite unused to the art of building; thus the Romans employed the slaves of the district, subjects liable to statute labour, or even the Roman armies; while the legal punishment of condemnation to work on public buildings was largely enforced.

The Romans by their extended use of concrete founded a new constructional system and employed it in the most diverse situations, adapting it with rare sagacity to their new needs, and utilizing it in the most important projects. The various kinds of walling may be divided into two classes:—*opus quadratum*, i.e., rectangular blocks of stone with or without mortar joints, frequently secured with dowels or cramps, and *concrete unfaced* or *faced*, used especially in Italy. As stated, this was a building mixture formed of lime and lumps of tufa, peperino, broken bricks, marble or pumice stone, and from the first century B.C. was used extensively for various building purposes.

(a) *Unfaced* concrete was usually used for foundations, and (b) *faced* concrete for walls. The latter was of four varieties:—

- i. Concrete faced with "opus incertum" (No. 46 B), which was the oldest kind, the concrete backing being studded

ROMAN EXAMPLES. I. ROMAN SYSTEM & CONSTRUCTION



- with irregular shaped pieces of stone, mainly used in the first and second centuries B.C.
- ii. Concrete faced with "opus reticulatum" (No. 46 c), so called from its resemblance to the meshes of a net (reticulum) the joints being laid in diagonal lines.
 - iii. Concrete faced with brick (testæ), used from the first century B.C. to the end of the Western Empire. The walling was faced with bricks, triangular on plan and usually about $1\frac{1}{2}$ inches thick (No. 46 d).
 - iv. Concrete with "opus mixtum" consisting of a wall of concrete having in addition to the ordinary brick facing bands of tufa blocks at intervals.

The majestic simplicity of their edifices give them a severe grandeur expressing the Roman ideals of conquest, wealth and power.

Thus from the time that concrete displaced the ashlar masonry of the Greeks, and allowed of unskilled labour, the style of the Romans tended to become everywhere uniform and generally above the influence of local conditions; for through the colonies and legionary camps the new methods penetrated to the extremities of the empire, and cities could be improvised, which became in their turn centres whence radiated the architectural ideas as well as the manners and customs of Rome.

Vaulting.—Although, as pointed out, the vault had been previously used by the Assyrians, the early Greeks, and the Etruscans, yet the Romans generalized vaulting as a structural system dating from the first century of the present era. They made it simple and practical by the employment of concrete, by which they covered the largest areas even now in existence. The effect was far reaching and gave freedom in the planning of complex structures, which were easily roofed, the vaults being of any form, and easily constructed on rough centres or temporary supports till the concrete was set. It will thus be understood that vaults of concrete had a very important effect on the forms of Roman buildings, and they were employed universally, so much so, that every Roman ruin is filled with their *débris*. The kinds of vault employed were as follows:—

- (a.) The semicircular or waggon-headed vault.
 - (b.) The cross vault.
 - (c.) The dome (hemispherical and semidomes).
- (a.) The semicircular or waggon-headed vault resting on two sides of the covered rectangle was used in apartments whose walls were sufficiently thick.
- (b.) The cross-vault was utilized for covering a square apartment, the pressure being taken by the four angles. When used over corridors and long apartments the pressure being exerted on points of division (Nos. 58 and 60), left the remainder of the

walls free for window openings. If the oblong compartment or hall were very wide, and the side walls had to be pierced by large openings, it was divided into square bays—generally three in number—and covered with groined vaults, that is to say, a longitudinal half-cylinder, of the diameter of the hall, intersected by three half-cylinders of similar diameter.

(c.) Hemispherical domes or cupolas (*cupa* = cup) (Nos. 54 and 55), were used for covering circular structures as in the Pantheon. Semi-domes were employed for *exedrae* and other recesses (No. 46 κ).

The great coherence of concrete formed of "Pozzolana" (see page 112) and lime was important; by its use, vaults and domes of enormous size were constructed. Most of these were cast in one solid mass with no lateral thrust on the walls, thus having the form, without the principle, of the arch, which, if formed of radiating voussoirs of brick or stone, would possibly have pushed out the walls.

As Prof. Middleton has pointed out, the Roman use of concrete for vaults was more striking and daring than for walls, and had an important effect on the general forms of Roman architecture. The use of buttresses had not been systematized, and it would have been impossible to vault the enormous spans if the vaulting had been composed of brick or of masonry as in mediæval times.

The Roman concrete vault was quite devoid of external thrust and covered its space with the rigidity of a metal lid, or inverted porcelain cup.

The construction of the Pantheon dome appears to be exceptional (page 134).

In many cases (No. 46), as in the Baths of Caracalla and Basilica of Constantine, brick arches or ribs probably used as temporary centres are embedded in the concrete vaults at various points, especially at the "groins," but these are sometimes superficial, like the brick facing to walls, and only tail a few inches into the mass of concrete vault, which is frequently as much as 6 feet thick.

The *decoration* of Roman buildings had little connection with the architecture proper, for a Roman edifice built of concrete could receive a decorative lining of any or every kind of marble, having no necessary connection with the general structure, such decoration being an independent sheathing giving a richness to the walls both internal and external. Roman architecture had the character, therefore, of a body clothed in many instances with rich materials forming a rational and appropriate finish to the structure, and differing essentially from Greek architecture.

Besides the use of many colored marbles other means of decorating wall surfaces are briefly stated here. Cements and

stuccoes ("Opus albarium") were frequently used for the coverings of walls both internal and external, and the final coat was polished. Mural paintings were executed on the prepared stucco, and may be classified as follows:—(a.) Fresco painting, (b.) Tempera painting, (c.) Varnish painting, and (d.) Caustic painting.

Marble, alabaster, porphyry and jasper as linings to the walls have been already referred to. They were usually attached by iron or bronze cramps to the walls upon a thick cement backing. Mosaics were also much used for ornamenting walls, vaults and floors. They are divided by Middleton into:—

(a.) "Opus tessellatum," or "vermiculatum," formed of squared tesserae of stone, marble, or glass to form patterns.

(b.) "Opus sectile" or "Opus scutulatum," of tesserae of marble, porphyry, or glass cut into shapes to form the pattern of which the "Opus Alexandrinum" was a very rich variety.

(c.) "Opus Spicatum," made of paving bricks in herring-bone fashion.

The glass mosaics sometimes forming elaborate figure pictures, were mostly used to decorate the walls and vaults only, and not the floors.

Gilded bronze was employed as a roofing material to important buildings, as employed at the Pantheon (page 134).

The abundant use of statues, many of them brought from Greece, led to the adoption of niches for their reception within the thickness of the walls. These were either semicircular, crowned with a semi-dome, or rectangular, and they occasionally had columns supporting a pediment, thus forming a frame.

3. EXAMPLES.

Etruscan Architecture.—In dealing with Roman Architecture mention must be made of the Etruscans or early inhabitants of central Italy, who were great builders, and whose methods of construction had a marked effect on that of the Romans. The style dates from about B. C. 750, and from their buildings it is known that they were aware of the value of the true or radiating arch for constructive purposes, and used it extensively in their buildings. The architectural remains consist chiefly of tombs, city walls, gateways (as at Perugia), bridges and aqueducts, and their character is similar to the early Pelasgic work at Tiryns and Mycenæ (page 54).

The walls are remarkable for their great solidity of construction, and for the cyclopean masonry, where huge masses of stone are piled up without the use of cement, or mortar of any kind. The "Cloaca Maxima" (c. B.C. 578) (No. 47), or great drain of Rome,

constructed to drain the valleys of Rome, has a semicircular arch of 11 feet span, in three rings of voussoirs, each 2 feet 6 inches high.

There are no remains of Etruscan temples, but Vitruvius gives a description of them. The *Temple of Jupiter Capitolinus* was the most important Etruscan example (dedicated B.C. 509), and is generally taken as being typical. Its cella was divided into three chambers containing statues of Jupiter, Minerva (Livy VII., iii) and Juno, and was nearly square on plan, with widely spaced columns and wooden architraves. It was burnt in B.C. 83 and rebuilt by Sulla, who brought some of the marble Corinthian columns from the Temple of Zeus Olympius at Athens (page 90).

Roman Architecture followed the Etruscan, and as indicated on page 114, was a composite style derived by the union of the Greek and Etruscan styles. The principal examples of Roman architecture were chiefly erected during 400 years, viz., between B.C. 100 and A.D. 300. The principal remains are found not only in Italy, but throughout Europe to wherever the Roman occupation extended, as at Nîmes and Arles in France, Tarragona and Segovia in Spain, Treves in Germany, Constantine in North Africa, Timgad in Algeria, and other places in North Africa, Baalbec and Palmyra in Syria, and many places in England (page 280).

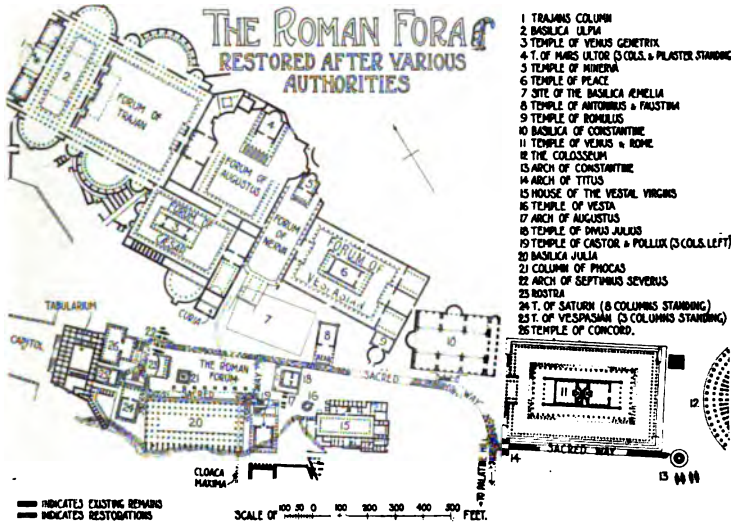
FORA.

The Forum corresponded with the Agora in a Greek city, and was an open space used as a meeting place and market, or a rendezvous for political demonstrators, corresponding to the Place of a French country town, the market place of English country towns, and to the Royal Exchange or probably Trafalgar Square in the Metropolis. The forum was usually surrounded by porticos, colonnades and public buildings, such as temples, basilicas (halls of justice), senate house, and shops, and was adorned with pillars of victory and memorial statues of great men.

Rome possessed several Fora, and a plan of these is given (No. 47). The "**Forum Romanum**" was the oldest, and grouped around it were some of the most important historical buildings. A restoration is given (No. 48), which will indicate its probable appearance in the heyday of ancient Rome.

The Forum Romanum was in early times also used as a hippodrome and for contests, which in after years during the Empire took place in the amphitheatres. This and the **Forum of Trajan**, which was the largest of all, were the most important. The others include those of Julius Cæsar, Augustus Vespasian and Nerva. The models in the Walker Art Gallery, Liverpool, and the Crystal Palace, give a good idea of the appearance of this important centre of architectural history.

Pompeii also possessed an important Forum.
The remarkable colonnaded streets at Palmyra and Damascus, Antioch, Bosra and elsewhere in Syria, and Asia Minor may also be best mentioned here.



47.

TEMPLES.

Note.—The orders are described under the Comparative table (page 167).
The Roman temples were the result of the amalgamation of the Etruscan and Greek types, for they resembled in many respects Greek examples, but their prostyle arrangement and the use of the podium was derived from Etruscan temples. The plans shown on No. 18 give some of the types used, and others are referred to later on (Nos. 49, 50, 52, 53 and 57). The characteristic temple is known as pseudo-peripteral (page 58), and had no side colonnades as was usual in Greek examples, the order of columns being attached to the flank walls and arranged as a prostyle portico towards the front only. Steps were provided at the principal end, between projecting wing walls, which often supported groups of statuary, and were continued along the flanks and back of the temple as a podium or continuous pedestal (Nos. 18 G, 49, 50) (page 167). Whereas Greek peripteral temples were normally twice as long as their width, the Roman examples were very much shorter. The size of the cella was frequently

ROMAN ARCHITECTURE.



THE FORUM ROMANUM. RESTORED.

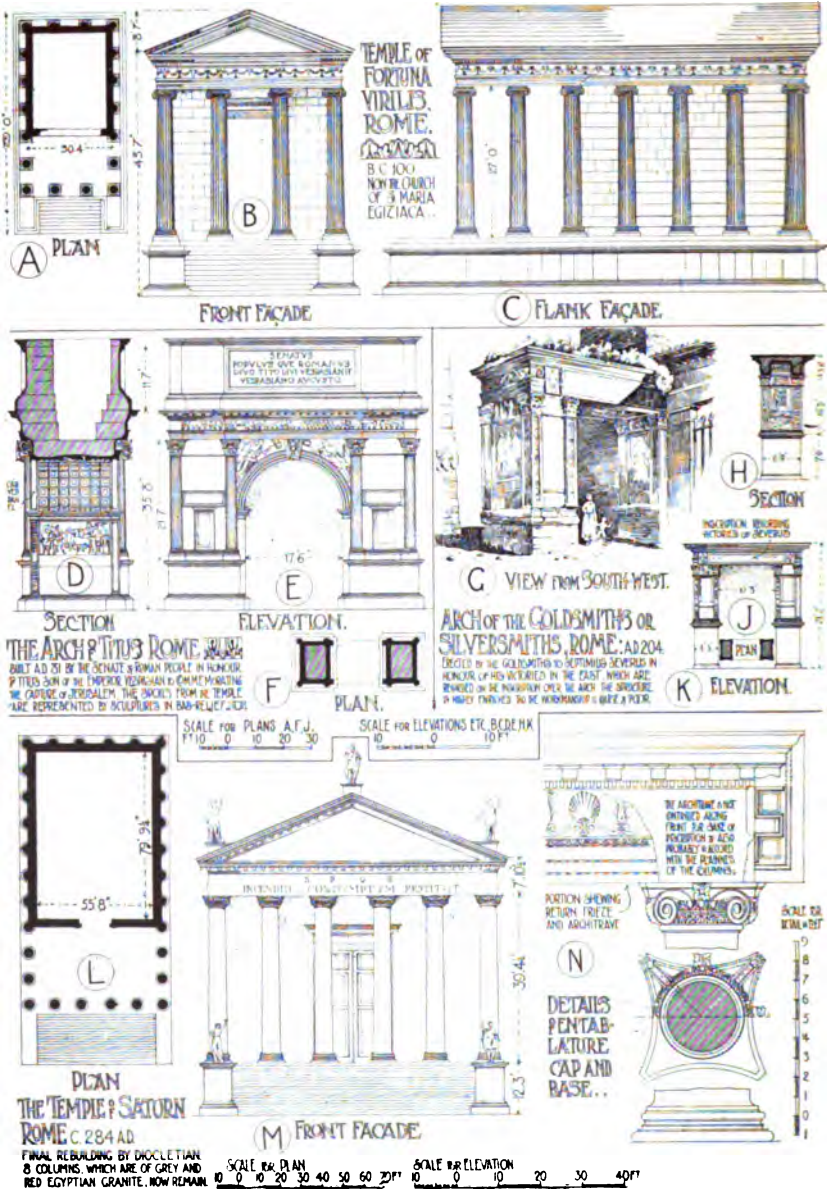
increased, being usually the whole width of the temple, which was used as a museum for Greek statuary and as a treasure store. As the architraves were supported by the enclosing walls on the flanks, temples could also be built on a larger scale than in the Greek style. Nothing definite is known as to the ceilings, but these may have been of coffering in stone as in the colonnades, of open timber-work as in the basilicas, or vaulted as in the Temple of Venus and Rome at Rome (No. 50), the Temple of Diana at Nîmes (No. 50), and the Temples at Spalato. The abolition of the encircling colonnade and the continuous stylobate of steps resulted in a certain loss of unity in comparison with Greek examples, which in most cases were isolated and visible from all sides; whereas the Roman temples were specially intended to be seen from the forum or open space upon which they usually faced, the front being therefore made important by the deep portico and flight of steps. No consideration was given to orientation as in Greek examples.

Circular and polygonal temples were also used by the Romans, being probably derived from Etruscan examples.

RECTANGULAR EXAMPLES.

At Rome.	Date.	Remarks.
The <i>Temple of Fortuna Virilis</i> (No. 49, A, B, C).	B.C. 100	A typical Roman temple plan. Ionic. Pseudo-peripteral tetrastyle. Now the church of S. Maria Egiziaca.
The <i>Temple of Mars Ultor</i> (the Avenger) (No. 52 and 67 G).	B.C. 42-2	Corinthian. Three columns and a pilaster remaining (page 125).
The <i>Temple of Concord</i> (No. 47 ^{2b}).	B.C. 27-A.D. 14	Corinthian. Pseudo peripteral prostyle-hexastyle. Unusual plan, having cella twice as wide as long.
The <i>Temple of Castor and Pollux</i> . Also known as Jupiter Stator (Nos. 47 ¹⁹ , 67 A and 68).	A.D. 6	Corinthian. Peripteral octastyle with front portico. Three columns remaining.
The <i>Temple of Vespasian</i> (No. 47 ²⁵).	A.D. 94	Corinthian. Pro-style-hexastyle. Three columns remaining.
The <i>Temple of Antoninus and Faustina</i> (Nos. 52 I, J, K, L, and 68 E).	A.D. 141	Corinthian. Pseudo-peripteral prostyle-hexastyle. Now the church of S. Lorenzo.
The <i>Temple of Venus and Rome</i> (Nos. 47 ¹¹ , and 50 A, B, C, D).	A.D. 123-135	Corinthian. Peculiar double temple (page 125).
The <i>Temple of Saturn</i> (Nos. 47 ²⁴ , and 49 L, M, N).	A.D. 284	Ionic. Pseudo-peripteral prostyle-hexastyle. Eight columns remaining.
At Athens.		
The <i>Temple of Jupiter Olympius</i> (Nos. 18 J, 43 A).	B.C. 174	(See page 90.)
At Nîmes.		
The <i>Maison Carrée</i> (Nos. 18 G, A.D. 117-138 (See page 125.) 50 H, J, K, 51).		
The <i>Temple of Diana</i> (No. 50 E, F, G).		(See page 125.)

ROMAN EXAMPLES. II.



RECTANGULAR EXAMPLES (*continued*).

At Spalato.	Date.	Remarks.
The Temple of <i>Æsculapius</i> (No. 59).	A.D. 300	(See page 161.)
At Baalbec.		
The Great Temple (No. 53).	A.D. 131-161	(See below.)
The Temple of <i>Jupiter</i> (No. 53).	A.D. 273	(See page 130.)
At Palmyra.		
The Great Temple of the Sun.	A.D. 273	Peripteral octastyle, probably Corinthian, having attached bronze leaves.

The Temple of Mars Ultor, Rome (B.C. 42-2) (No. 52), stood in the Forum of Augustus, in a precinct surrounded by an enclosing wall 100 feet high. It was one of the largest Roman temples, having columns 58 feet in height, but there are only three columns and a pilaster remaining, the capital of the latter being shown in No. 67 G. A short description is given on No. 52.

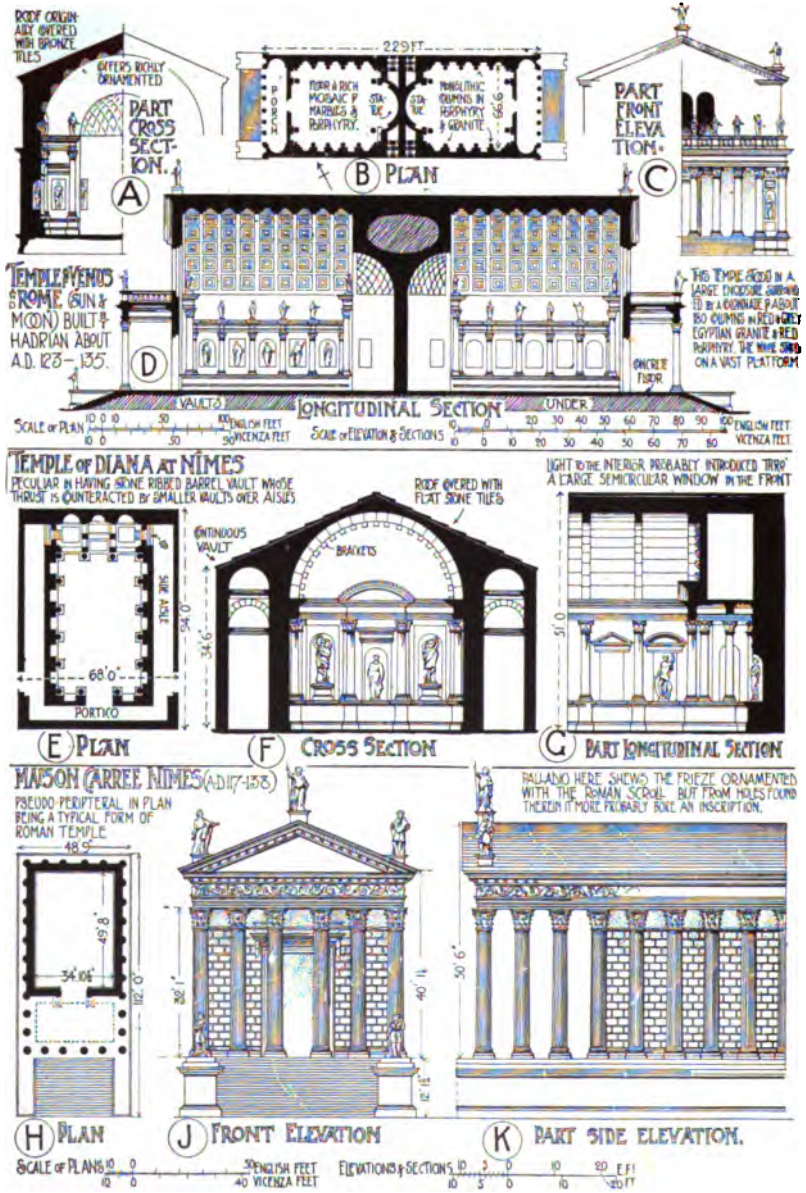
The Temple of Venus and Rome (A.D. 123-135) (No. 50), had a peculiar plan consisting of two cellas, each provided with an apse placed back to back, and a pronaos at each end. It was pseudo-dipteral decastyle (No. 47¹¹), the peristyle having twenty columns on the flanks, and the cella walls were of extra thickness to take the thrust of the vault. Internally there were niches for statues, and the cella was crowned with a hemispherical coffered vault, the apses having semi-domes. The plan on No. 47¹¹ gives the usually accepted restoration of this building, and that by Palladio is given on No. 50 A, B, C, D. This temple was raised on a platform and stood in a large enclosure, entered through imposing gateways, surrounded by a colonnade of nearly 200 columns of red and grey Egyptian granite and red porphyry, occupying in all an area of about 540 by 340 feet.

The *Maison Carrée*, Nîmes (A.D. 117-138) (Nos. 18 G, 50 H, J, K, and 51), was erected during the reign of Hadrian, and is the best preserved Roman temple in existence. It is of the typical form, being pseudo-peripteral prostyle hexastyle, with Corinthian columns supporting a rich entablature, and raised on a podium about 12 feet high provided with a front flight of steps only.

The so-called Temple of Diana, Nîmes (No. 50 E, F, G), was probably a nymphæum connected with some thermæ. The interior walls have detached Corinthian columns, supporting a cornice from which springs a stone-ribbed barrel vault, the thrust of which is counteracted by smaller continuous vaults over the side passages, probably a prototype of the vaulting of many southern French Romanesque churches.

The Great Temple, Baalbec (A.D. 131-161) (No. 53), was dipteral decastyle, but only six columns now remain. It stood in a court 380 feet square with recessed porticos, in front of which was a hexagonal cortile entered by a dodecastyle Corinthian portico

ROMAN EXAMPLES III.

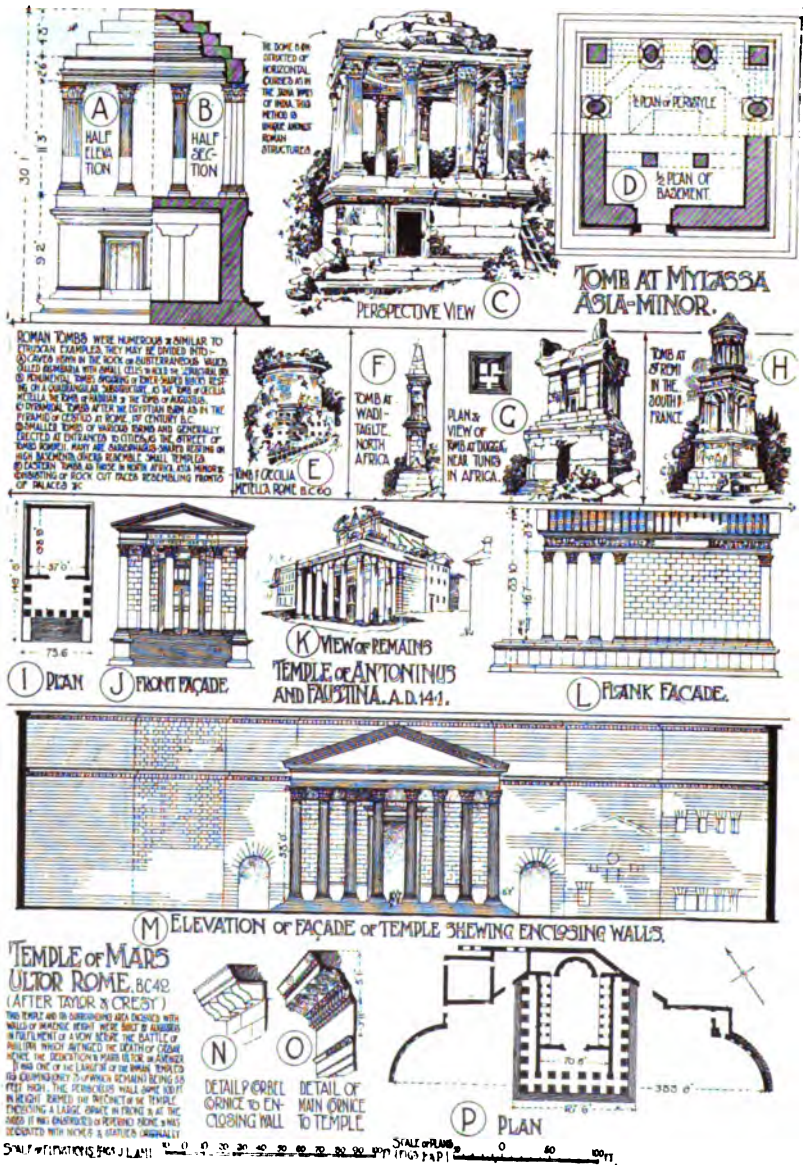


ROMAN ARCHITECTURE.



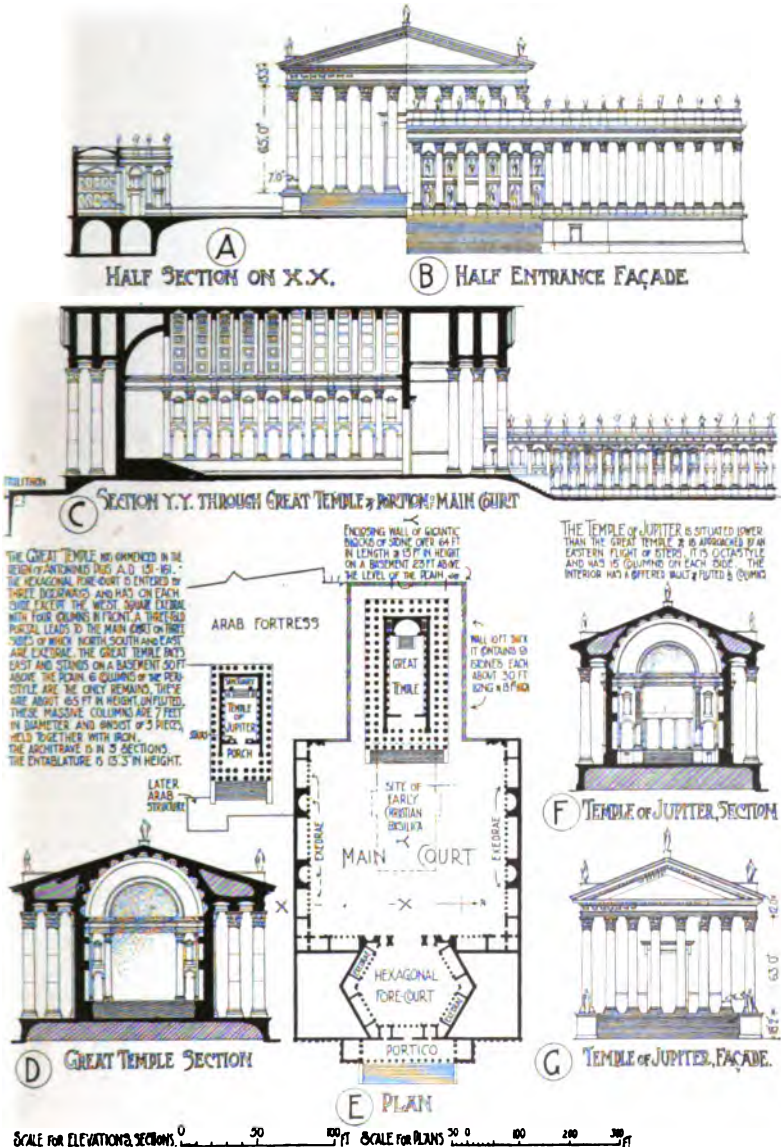
MAISON CARRÉE, NÎMES.

ROMAN EXAMPLES. IV.



ROMAN EXAMPLES. V.

TEMPLES AT BA'ALBEK, SYRIA



in antis. The buildings were constructed with large blocks of stone without cement, and the columns were built up in three pieces. A further short description is given on No. 53.

The **Temple of Jupiter, Baalbec** (A.D. 273), is peripteral octastyle with a vaulted sanctuary at the west end, approached by a flight of steps. The interior was ornamented with half-Corinthian columns having returned entablature, from which sprung the coffered vault. Between the columns were two tiers of niches. Dawkins and Wood restore this temple as if vaulted, but other authorities do not think this possible.

CIRCULAR AND POLYGONAL EXAMPLES.

At Rome.

The *Temple of Mater Matuta*, formerly known as the Temple of Vesta. B.C. 27-A.D. 14. (See below.)

The *Pantheon* (Nos. 33, 54, 55, 56, 57, 67 H). A.D. 120-124. (See below.)

The *Temple of Vesta* (No. 47). A.D. 205. (See below.)

At Tivoli (near Rome).

The *Temple of Vesta* (Nos. 18 C, 57). B.C. 27-A.D. 14. (See page 134.)

At Spalato.

The *Temple of Jupiter* (in Diocletian's Palace) (No. 59). A.D. 284. (See pages 136, 161.)

At Baalbec.

The *Circular Temple* (No. 60 D, E, F). A.D. 273. (See page 136.)

The **Temple of Mater Matuta, Rome**, formerly known as the Temple of Vesta, is situated in the Forum Boarium, and is circular peripteral, having twenty Corinthian columns, 34 feet 7 inches in height and 3 feet 2 inches in diameter, and therefore nearly eleven diameters high. These surround a cella 28 feet in diameter, and rest on a podium 6 feet high. It is built of Parian marble, with the exception of the podium, which is of tufa, and is approached by a flight of marble steps. The roof was probably of wood covered with bronze tiles. The V-shaped section of the leaves indicates the work of a Greek artist. It is now the Church of S. M. del Sole.

The **Temple of Vesta, Rome**, (in the Forum Romanum) (No. 47), was founded in B.C. 715, but was frequently destroyed by fire and repeatedly rebuilt, finally by Septimius Severus in A.D. 205. According to Middleton it was circular peripteral with eighteen columns surrounding a cella, and resting on a podium 10 feet high. Among the remains lately found are some fragments of the columns having fillets for fitting metal screens between the shafts.

The **Pantheon, Rome** (Nos. 33, 37 A, B, C, 54, 55, 56, 57 E) is now, owing to the investigations of M. Chedanne in 1892, known to belong to two distinct periods.

The circular portion, known as the Rotunda, occupies the site

ROMAN EXAMPLES. VI.

THE PANTHEON at ROME ✦

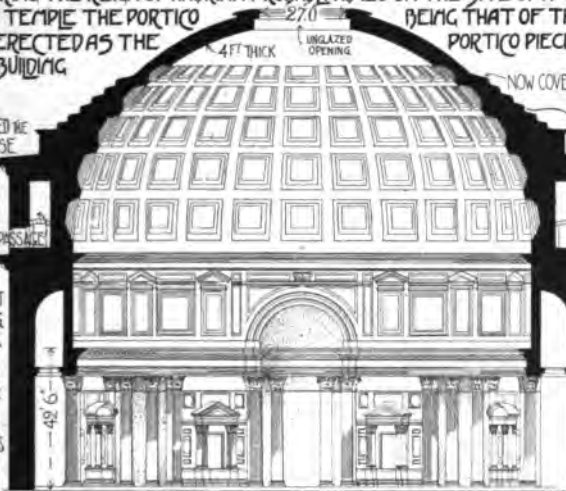
BUILT DURING THE REIGN OF HADRIAN PROBABLY AD 123 ON THE SITE OF A THREE CELED TUSCAN TEMPLE THE PORTICO BEING THAT OF THE OLD TEM-
PIE RE-ERECTED AS THE PORTICO PIECE OF THE NEW BUILDING

COFFERS SERVED THE DOUBLE PURPOSE OF STRENGTHENING THE VAULT & REDUCING ITS WEIGHT. NOTE MODIFICATION IN UPPER HOLLOW PASSAGE MEMBERS OF EACH COFFER TO OBTAIN AN EFFECT FORESHADOWING AS SEEN FROM BELOW.

INTERNAL WALLS MAGNIFICENTLY DECORATED WITH LININGS OF MARBLES AND PORPHYRY.

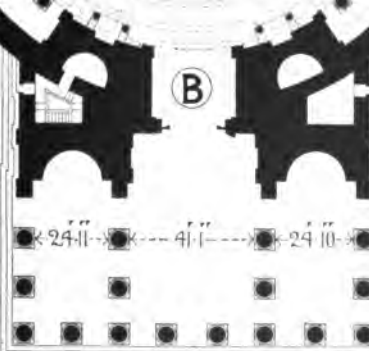
THE FLOOR IS PAVED WITH LARGE SLABS OF GRANITE, MARBLE, PORPHYRY & C. THE PAVEMENT UNDER DOME IS SLIGHTLY CURVED TO FALL FROM CENTRAL WALLS. IN PORTION OF PAVEMENT BENEATH DOME ARE HOLES COMMUNICATING WITH CISTERN & DRAIN UNDER.

THE DOME WAS FOUND BY M. CHEDANNE TO BE BUILT OF BRICKWORK LAID IN HORIZONTAL COURSES BOTH NEAR THE CENTRAL OPENING AND UP TO THE FOURTH RANGE OF COFFERS THE INTERMEDIATE PORTION WAS NOT EXAMINED, BUT IT IS HELD THAT A SERIES OF ARCHES MAY HAVE BEEN CARRIED ROUND IN THIS PORTION. THIS METHOD OF CONSTRUCTION MAY HAVE BEEN ADOPTED TO AVOID THE THRUST OF THE DOME.



(A) ELEVATION TOWARDS APSE

CENTRE 14' 6" LINE



SCALE OF 0' 1' 2' 3' 4' 5' 6' 7' 8' 9' 10' 11' 12' 13' 14' 15' 16' 17' 18' 19' 20' 21' 22' 23' 24' 25' 26' 27' 28' 29' 30' 31' 32' 33' 34' 35' 36' 37' 38' 39' 40' 41' 42' 43' 44' 45' 46' 47' 48' 49' 50' 51' 52' 53' 54' 55' 56' 57' 58' 59' 60' 61' 62' 63' 64' 65' 66' 67' 68' 69' 70' 71' 72' 73' 74' 75' 76' 77' 78' 79' 80' 81' 82' 83' 84' 85' 86' 87' 88' 89' 90' 91' 92' 93' 94' 95' 96' 97' 98' 99' 100' 101' 102' 103' 104' 105' 106' 107' 108' 109' 110' 111' 112' 113' 114' 115' 116' 117' 118' 119' 120' 121' 122' 123' 124' 125' 126' 127' 128' 129' 130' 131' 132' 133' 134' 135' 136' 137' 138' 139' 140' 141' 142' 143' 144' 145' 146' 147' 148' 149' 150' 151' 152' 153' 154' 155' 156' 157' 158' 159' 160' 161' 162' 163' 164' 165' 166' 167' 168' 169' 170' 171' 172' 173' 174' 175' 176' 177' 178' 179' 180' 181' 182' 183' 184' 185' 186' 187' 188' 189' 190' 191' 192' 193' 194' 195' 196' 197' 198' 199' 200' 201' 202' 203' 204' 205' 206' 207' 208' 209' 210' 211' 212' 213' 214' 215' 216' 217' 218' 219' 220' 221' 222' 223' 224' 225' 226' 227' 228' 229' 230' 231' 232' 233' 234' 235' 236' 237' 238' 239' 240' 241' 242' 243' 244' 245' 246' 247' 248' 249' 250' 251' 252' 253' 254' 255' 256' 257' 258' 259' 260' 261' 262' 263' 264' 265' 266' 267' 268' 269' 270' 271' 272' 273' 274' 275' 276' 277' 278' 279' 280' 281' 282' 283' 284' 285' 286' 287' 288' 289' 290' 291' 292' 293' 294' 295' 296' 297' 298' 299' 300' 301' 302' 303' 304' 305' 306' 307' 308' 309' 310' 311' 312' 313' 314' 315' 316' 317' 318' 319' 320' 321' 322' 323' 324' 325' 326' 327' 328' 329' 330' 331' 332' 333' 334' 335' 336' 337' 338' 339' 340' 341' 342' 343' 344' 345' 346' 347' 348' 349' 350' 351' 352' 353' 354' 355' 356' 357' 358' 359' 360' 361' 362' 363' 364' 365' 366' 367' 368' 369' 370' 371' 372' 373' 374' 375' 376' 377' 378' 379' 380' 381' 382' 383' 384' 385' 386' 387' 388' 389' 390' 391' 392' 393' 394' 395' 396' 397' 398' 399' 400' 401' 402' 403' 404' 405' 406' 407' 408' 409' 410' 411' 412' 413' 414' 415' 416' 417' 418' 419' 420' 421' 422' 423' 424' 425' 426' 427' 428' 429' 430' 431' 432' 433' 434' 435' 436' 437' 438' 439' 440' 441' 442' 443' 444' 445' 446' 447' 448' 449' 450' 451' 452' 453' 454' 455' 456' 457' 458' 459' 460' 461' 462' 463' 464' 465' 466' 467' 468' 469' 470' 471' 472' 473' 474' 475' 476' 477' 478' 479' 480' 481' 482' 483' 484' 485' 486' 487' 488' 489' 490' 491' 492' 493' 494' 495' 496' 497' 498' 499' 500' 501' 502' 503' 504' 505' 506' 507' 508' 509' 510' 511' 512' 513' 514' 515' 516' 517' 518' 519' 520' 521' 522' 523' 524' 525' 526' 527' 528' 529' 530' 531' 532' 533' 534' 535' 536' 537' 538' 539' 540' 541' 542' 543' 544' 545' 546' 547' 548' 549' 550' 551' 552' 553' 554' 555' 556' 557' 558' 559' 560' 561' 562' 563' 564' 565' 566' 567' 568' 569' 570' 571' 572' 573' 574' 575' 576' 577' 578' 579' 580' 581' 582' 583' 584' 585' 586' 587' 588' 589' 590' 591' 592' 593' 594' 595' 596' 597' 598' 599' 600' 601' 602' 603' 604' 605' 606' 607' 608' 609' 610' 611' 612' 613' 614' 615' 616' 617' 618' 619' 620' 621' 622' 623' 624' 625' 626' 627' 628' 629' 630' 631' 632' 633' 634' 635' 636' 637' 638' 639' 640' 641' 642' 643' 644' 645' 646' 647' 648' 649' 650' 651' 652' 653' 654' 655' 656' 657' 658' 659' 660' 661' 662' 663' 664' 665' 666' 667' 668' 669' 670' 671' 672' 673' 674' 675' 676' 677' 678' 679' 680' 681' 682' 683' 684' 685' 686' 687' 688' 689' 690' 691' 692' 693' 694' 695' 696' 697' 698' 699' 700' 701' 702' 703' 704' 705' 706' 707' 708' 709' 710' 711' 712' 713' 714' 715' 716' 717' 718' 719' 720' 721' 722' 723' 724' 725' 726' 727' 728' 729' 730' 731' 732' 733' 734' 735' 736' 737' 738' 739' 740' 741' 742' 743' 744' 745' 746' 747' 748' 749' 750' 751' 752' 753' 754' 755' 756' 757' 758' 759' 760' 761' 762' 763' 764' 765' 766' 767' 768' 769' 770' 771' 772' 773' 774' 775' 776' 777' 778' 779' 780' 781' 782' 783' 784' 785' 786' 787' 788' 789' 790' 791' 792' 793' 794' 795' 796' 797' 798' 799' 800' 801' 802' 803' 804' 805' 806' 807' 808' 809' 810' 811' 812' 813' 814' 815' 816' 817' 818' 819' 820' 821' 822' 823' 824' 825' 826' 827' 828' 829' 830' 831' 832' 833' 834' 835' 836' 837' 838' 839' 840' 841' 842' 843' 844' 845' 846' 847' 848' 849' 850' 851' 852' 853' 854' 855' 856' 857' 858' 859' 860' 861' 862' 863' 864' 865' 866' 867' 868' 869' 870' 871' 872' 873' 874' 875' 876' 877' 878' 879' 880' 881' 882' 883' 884' 885' 886' 887' 888' 889' 890' 891' 892' 893' 894' 895' 896' 897' 898' 899' 900' 901' 902' 903' 904' 905' 906' 907' 908' 909' 910' 911' 912' 913' 914' 915' 916' 917' 918' 919' 920' 921' 922' 923' 924' 925' 926' 927' 928' 929' 930' 931' 932' 933' 934' 935' 936' 937' 938' 939' 940' 941' 942' 943' 944' 945' 946' 947' 948' 949' 950' 951' 952' 953' 954' 955' 956' 957' 958' 959' 960' 961' 962' 963' 964' 965' 966' 967' 968' 969' 970' 971' 972' 973' 974' 975' 976' 977' 978' 979' 980' 981' 982' 983' 984' 985' 986' 987' 988' 989' 990' 991' 992' 993' 994' 995' 996' 997' 998' 999' 1000' 1001' 1002' 1003' 1004' 1005' 1006' 1007' 1008' 1009' 1010' 1011' 1012' 1013' 1014' 1015' 1016' 1017' 1018' 1019' 1020' 1021' 1022' 1023' 1024' 1025' 1026' 1027' 1028' 1029' 1030' 1031' 1032' 1033' 1034' 1035' 1036' 1037' 1038' 1039' 1040' 1041' 1042' 1043' 1044' 1045' 1046' 1047' 1048' 1049' 1050' 1051' 1052' 1053' 1054' 1055' 1056' 1057' 1058' 1059' 1060' 1061' 1062' 1063' 1064' 1065' 1066' 1067' 1068' 1069' 1070' 1071' 1072' 1073' 1074' 1075' 1076' 1077' 1078' 1079' 1080' 1081' 1082' 1083' 1084' 1085' 1086' 1087' 1088' 1089' 1090' 1091' 1092' 1093' 1094' 1095' 1096' 1097' 1098' 1099' 1100' 1101' 1102' 1103' 1104' 1105' 1106' 1107' 1108' 1109' 1110' 1111' 1112' 1113' 1114' 1115' 1116' 1117' 1118' 1119' 1120' 1121' 1122' 1123' 1124' 1125' 1126' 1127' 1128' 1129' 1130' 1131' 1132' 1133' 1134' 1135' 1136' 1137' 1138' 1139' 1140' 1141' 1142' 1143' 1144' 1145' 1146' 1147' 1148' 1149' 1150' 1151' 1152' 1153' 1154' 1155' 1156' 1157' 1158' 1159' 1160' 1161' 1162' 1163' 1164' 1165' 1166' 1167' 1168' 1169' 1170' 1171' 1172' 1173' 1174' 1175' 1176' 1177' 1178' 1179' 1180' 1181' 1182' 1183' 1184' 1185' 1186' 1187' 1188' 1189' 1190' 1191' 1192' 1193' 1194' 1195' 1196' 1197' 1198' 1199' 1200' 1201' 1202' 1203' 1204' 1205' 1206' 1207' 1208' 1209' 1210' 1211' 1212' 1213' 1214' 1215' 1216' 1217' 1218' 1219' 1220' 1221' 1222' 1223' 1224' 1225' 1226' 1227' 1228' 1229' 1230' 1231' 1232' 1233' 1234' 1235' 1236' 1237' 1238' 1239' 1240' 1241' 1242' 1243' 1244' 1245' 1246' 1247' 1248' 1249' 1250' 1251' 1252' 1253' 1254' 1255' 1256' 1257' 1258' 1259' 1260' 1261' 1262' 1263' 1264' 1265' 1266' 1267' 1268' 1269' 1270' 1271' 1272' 1273' 1274' 1275' 1276' 1277' 1278' 1279' 1280' 1281' 1282' 1283' 1284' 1285' 1286' 1287' 1288' 1289' 1290' 1291' 1292' 1293' 1294' 1295' 1296' 1297' 1298' 1299' 1300' 1301' 1302' 1303' 1304' 1305' 1306' 1307' 1308' 1309' 1310' 1311' 1312' 1313' 1314' 1315' 1316' 1317' 1318' 1319' 1320' 1321' 1322' 1323' 1324' 1325' 1326' 1327' 1328' 1329' 1330' 1331' 1332' 1333' 1334' 1335' 1336' 1337' 1338' 1339' 1340' 1341' 1342' 1343' 1344' 1345' 1346' 1347' 1348' 1349' 1350' 1351' 1352' 1353' 1354' 1355' 1356' 1357' 1358' 1359' 1360' 1361' 1362' 1363' 1364' 1365' 1366' 1367' 1368' 1369' 1370' 1371' 1372' 1373' 1374' 1375' 1376' 1377' 1378' 1379' 1380' 1381' 1382' 1383' 1384' 1385' 1386' 1387' 1388' 1389' 1390' 1391' 1392' 1393' 1394' 1395' 1396' 1397' 1398' 1399' 1400' 1401' 1402' 1403' 1404' 1405' 1406' 1407' 1408' 1409' 1410' 1411' 1412' 1413' 1414' 1415' 1416' 1417' 1418' 1419' 1420' 1421' 1422' 1423' 1424' 1425' 1426' 1427' 1428' 1429' 1430' 1431' 1432' 1433' 1434' 1435' 1436' 1437' 1438' 1439' 1440' 1441' 1442' 1443' 1444' 1445' 1446' 1447' 1448' 1449' 1450' 1451' 1452' 1453' 1454' 1455' 1456' 1457' 1458' 1459' 1460' 1461' 1462' 1463' 1464' 1465' 1466' 1467' 1468' 1469' 1470' 1471' 1472' 1473' 1474' 1475' 1476' 1477' 1478' 1479' 1480' 1481' 1482' 1483' 1484' 1485' 1486' 1487' 1488' 1489' 1490' 1491' 1492' 1493' 1494' 1495' 1496' 1497' 1498' 1499' 1500' 1501' 1502' 1503' 1504' 1505' 1506' 1507' 1508' 1509' 1510' 1511' 1512' 1513' 1514' 1515' 1516' 1517' 1518' 1519' 1520' 1521' 1522' 1523' 1524' 1525' 1526' 1527' 1528' 1529' 1530' 1531' 1532' 1533' 1534' 1535' 1536' 1537' 1538' 1539' 1540' 1541' 1542' 1543' 1544' 1545' 1546' 1547' 1548' 1549' 1550' 1551' 1552' 1553' 1554' 1555' 1556' 1557' 1558' 1559' 1560' 1561' 1562' 1563' 1564' 1565' 1566' 1567' 1568' 1569' 1570' 1571' 1572' 1573' 1574' 1575' 1576' 1577' 1578' 1579' 1580' 1581' 1582' 1583' 1584' 1585' 1586' 1587' 1588' 1589' 1590' 1591' 1592' 1593' 1594' 1595' 1596' 1597' 1598' 1599' 1600' 1601' 1602' 1603' 1604' 1605' 1606' 1607' 1608' 1609' 1610' 1611' 1612' 1613' 1614' 1615' 1616' 1617' 1618' 1619' 1620' 1621' 1622' 1623' 1624' 1625' 1626' 1627' 1628' 1629' 1630' 1631' 1632' 1633' 1634' 1635' 1636' 1637' 1638' 1639' 1640' 1641' 1642' 1643' 1644' 1645' 1646' 1647' 1648' 1649' 1650' 1651' 1652' 1653' 1654' 1655' 1656' 1657' 1658' 1659' 1660' 1661' 1662' 1663' 1664' 1665' 1666' 1667' 1668' 1669' 1670' 1671' 1672' 1673' 1674' 1675' 1676' 1677' 1678' 1679' 1680' 1681' 1682' 1683' 1684' 1685' 1686' 1687' 1688' 1689' 1690' 1691' 1692' 1693' 1694' 1695' 1696' 1697' 1698' 1699' 1700' 1701' 1702' 1703' 1704' 1705' 1706' 1707' 1708' 1709' 1710' 1711' 1712' 1713' 1714' 1715' 1716' 1717' 1718' 1719' 1720' 1721' 1722' 1723' 1724' 1725' 1726' 1727' 1728' 1729' 1730' 1731' 1732' 1733' 1734' 1735' 1736' 1737' 1738' 1739' 1740' 1741' 1742' 1743' 1744' 1745' 1746' 1747' 1748' 1749' 1750' 1751' 1752' 1753' 1754' 1755' 1756' 1757' 1758' 1759' 1760' 1761' 1762' 1763' 1764' 1765' 1766' 1767' 1768' 1769' 1770' 1771' 1772' 1773' 1774' 1775' 1776' 1777' 1778' 1779' 1780' 1781' 1782' 1783' 1784' 1785' 1786' 1787' 1788' 1789' 1790' 1791' 1792' 1793' 1794' 1795' 1796' 1797' 1798' 1799' 1800' 1801' 1802' 1803' 1804' 1805' 1806' 1807' 1808' 1809' 1810' 1811' 1812' 1813' 1814' 1815' 1816' 1817' 1818' 1819' 1820' 1821' 1822' 1823' 1824' 1825' 1826' 1827' 1828' 1829' 1830' 1831' 1832' 1833' 1834' 1835' 1836' 1837' 1838' 1839' 1840' 1841' 1842' 1843' 1844' 1845' 1846' 1847' 1848' 1849' 1850' 1851' 1852' 1853' 1854' 1855' 1856' 1857' 1858' 1859' 1860' 1861' 1862' 1863' 1864' 1865' 1866' 1867' 1868' 1869' 1870' 1871' 1872' 1873' 1874' 1875' 1876' 1877' 1878' 1879' 1880' 1881' 1882' 1883' 1884' 1885' 1886' 1887' 1888' 1889' 1890' 1891' 1892' 1893' 1894' 1895' 1896' 1897' 1898' 1899' 1900' 1901' 1902' 1903' 1904' 1905' 1906' 1907' 1908' 1909' 1910' 1911' 1912' 1913' 1914' 1915' 1916' 1917' 1918' 1919' 1920' 1921' 1922' 1923' 1924' 1925' 1926' 1927' 1928' 1929' 1930' 1931' 1932' 1933' 1934' 1935' 1936' 1937' 1938' 1939' 1940' 1941' 1942' 1943' 1944' 1945' 1946' 1947' 1948' 1949' 1950' 1951' 1952' 1953' 1954' 1955' 1956' 1957' 1958' 1959' 1960' 1961' 1962' 1963' 1964' 1965' 1966' 1967' 1968' 1969' 1970' 1971' 1972' 1973' 1974' 1975' 1976' 1977' 1978' 1979' 1980' 1981' 1982' 1983' 1984' 1985' 1986' 1987' 1988' 1989' 1990' 1991' 1992' 1993' 1994' 1995' 1996' 1997' 1998' 1999' 2000' 2001' 2002' 2003' 2004' 2005' 2006' 2007' 2008' 2009' 2010' 2011' 2012' 2013' 2014' 2015' 2016' 2017' 2018' 2019' 2020' 2021' 2022' 2023' 2024' 2025' 2026' 2027' 2028' 2029' 2030' 2031' 2032' 2033' 2034' 2035' 2036' 2037' 2038' 2039' 2040' 2041' 2042' 2043' 2044' 2045' 2046' 2047' 2048' 2049' 2050' 2051' 2052' 2053' 2054' 2055' 2056' 2057' 2058' 2059' 2060' 2061' 2062' 2063' 2064' 2065' 2066' 2067' 2068' 2069' 2070' 2071' 2072' 2073' 2074' 2075' 2076' 2077' 2078' 2079' 2080' 2081' 2082' 2083' 2084' 2085' 2086' 2087' 2088' 2089' 2090' 2091' 2092' 2093' 2094' 2095'

of an older uncovered piazza, used as a "nymphæum," or place for plants, flowers, and running water, the level of its floor being 8 feet below the present level.

In front of this "nymphæum," and facing towards the south, was a decastyle portico, forming a frontispiece to a three-cell temple of the Etruscan type, built by Agrippa during the reign of Augustus, B.C. 27-A.D. 14.

The present Rotunda was erected by the Emperor Hadrian, in A.D. 120-124, on the site of the more ancient "nymphæum," the portico to the Etruscan temple being taken down and re-erected at the higher level. As rebuilt this portico was made octastyle instead of decastyle, and was made to face the north instead of the south.

The Rotunda (now the Church of S. Maria Rotonda) is a circular structure having an internal diameter of 142 feet 6 inches, which is also its internal height. The walls, of concrete (*opus incertum*), with a layer of tiles every three feet in height, are 20 feet in thickness, and have eight great recesses, one of which forms the entrance; three of the remaining seven are semicircular *exedræ*, the other four being rectangular on plan. Two columns are placed on the front line of these recesses, above which are relieving arches.

The eight piers have niches entered from the exterior of the building, formed in three heights, of which the lower are semicircular on plan, and are 19 feet high to the springing of their hemispherical heads, the second tier have their floor on the same level as the cornice over the inner order, and the third tier are level with and entered from the second cornice of the exterior.

In front of the Rotunda is the Corinthian octastyle portico, 110 feet wide by 60 feet deep in the centre, the first, third, sixth and eighth columns having two others behind them. At the back of the portico are niches, and staircases by which to ascend to the various parts of the edifice.

The columns, 42 feet 6 inches high, in front of the recesses in the interior, are believed to be part of the original design of Hadrian's architect. The lower third of these columns is cabled, and the upper portion is fluted (No. 55). The marble facing to the walls between, and the columns, entablature, and pediments of the projecting altars are later additions.

The attic or upper story was originally ornamented with porphyry or marble pilasters, with capitals, six of which are in the British Museum, of white marble and panelling of *giallo antico*, *serpentine*, and *pavonazetto*, but in 1747 this marble panelling was removed and the present stucco decoration inserted.

The dome or cupola is a hemisphere, having its inner surface coffered in five ranges. The manner in which the sinkings or mouldings are regulated or foreshortened so as to be seen from below is worthy of notice.

ROMAN ARCHITECTURE.



THE PANTHEON, ROME.
Showing Method of Lighting.

The dome, although described by Middleton to be of concrete, was found by Chedanne to be built of brickwork laid in almost horizontal courses up to the fourth range of coffers, and also near the central opening at the summit. The intermediate portion was not examined, but it is held that a series of arches may have been formed in this portion, so as to relieve from pressure the recessed openings below.

The lighting is effected solely by one circular unglazed opening, 27 feet in diameter, formed in the crown of the dome, and still retaining its circular bronze cornice (No. 54 c, d).

This method of lighting produces an effect which is solemn and impressive; and there may have been a symbolic meaning in thus imitating the appearance of the vault of the heavens in the temple of all the gods, the idea being that the worship of Jupiter should take place in a building open to the sky. "One great eye opening upon heaven is by far the noblest conception for lighting a building to be found in Europe."

The circular portion was originally faced with marble up to the lower string cornice, the upper portion being faced with stucco decorated with pilasters, as shown in the drawings made by Palladio in the 16th century. At the present time the walls are faced in brick with "opus reticulatum," divided by the two cornices.

The dome, which has its lower portion formed in steps, was originally covered with bronze gilded plates, but these were removed to Constantinople by Constans II. in 655, and replaced with sheets of lead.

The octastyle portico has monolith Corinthian columns, 46 feet 6 inches high, 5 feet in diameter at the base, and 4 feet 3 inches at the top. These support an entablature 11 feet high, and a pediment having an inclination of about 23 degrees.

Each of the three divisions of the portico ceiling appears to have been segmental and formed of bronze plates, since removed.

The old Roman bronze door frame, doors and fanlight, originally plated in gold, still remain (No. 37 A).

The **Temple of Vesta, Tivoli** (B.C. 27-A.D. 14) (Nos. 18 c, 57 H, J, K), is another circular peripteral example, having a cella 24 feet in diameter, surrounded by a peristyle of eighteen Corinthian columns, 23 feet 6 inches high, resting on a podium. The cella, 23 feet 11 inches in diameter internally, had two windows, and a doorway approached by a flight of steps. The columns are nearly $9\frac{3}{4}$ diameters high, and the capitals, of which the foliage is derived from the *acanthus mollis*, are one diameter in height.

The reason for the difference in design between the Temple of Mater Matuta, Rome, and this example are instructive. The Roman building, placed in a low flat situation, has columns of slender proportions in order to give it the required height; whereas the Tivoli example, placed on the edge of a rocky prominence, and



THE PANTHEON, ROME.

thus provided with a lofty basement, has columns of a sturdier proportion.

The **Temple of Jupiter, Spalato** (in Diocletian's Palace) (A.D. 284) (No. 59), is a further development of the Pantheon. Externally it is octagonal, surrounded by a low peristyle of Corinthian columns, but the interior of the cella is circular, 43 feet 8 inches in diameter, with four circular recesses and three square, the entrance corresponding to a fourth. Between these are placed eight Corinthian columns with Composite ones superimposed, advanced slightly in front of the face of the wall. The whole is raised on a podium, and crowned with a remarkable domical vault constructed in tiers of brick arches, externally presenting a pyramidal form.

The **Circular Temple, Baalbec** (A.D. 273) (No. 60 D, E, F), has a circular cella raised on a podium and approached by a flight of steps. It is surrounded by eight Corinthian columns, six of which are well advanced from the cella wall, and occupy the positions resulting from the division of a circle into seven equal parts. The entrance is placed centrally on the seventh division of the circle, and has a column on either side. The cella wall has Corinthian pilasters, between which are semicircular niches for statuary. The line of the entablature is curved inwards towards the cella between the six columns above mentioned. Internally it has superimposed Ionic and Corinthian orders.

The Christian baptisteries erected in the following centuries were adapted from such circular temples as these just described, which are therefore extremely interesting with respect to architectural evolution.

BASILICAS.

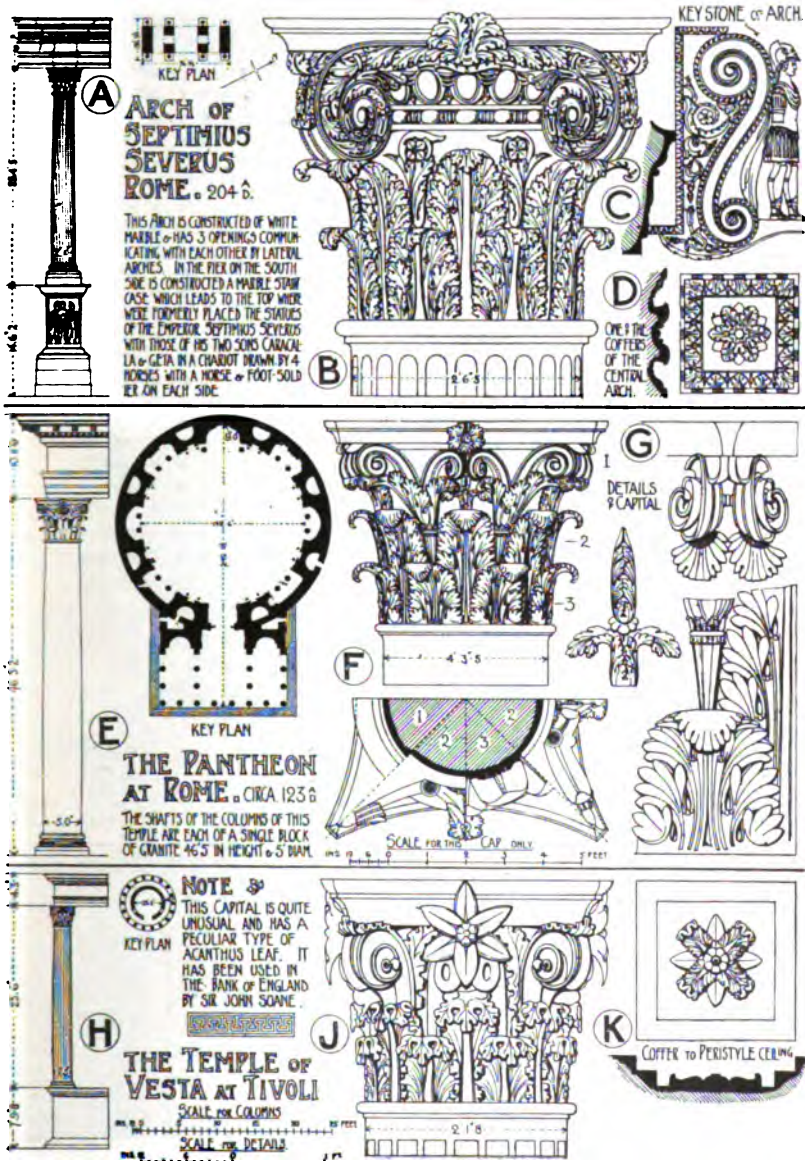
These, erected as halls of justice and as exchanges for merchants, comprise some of the finest buildings erected by the Romans, and bear witness to the importance of law and justice in their eyes. These buildings are also interesting as a link between Classic and Christian architecture, as explained later on page 181.

The usual plan was a rectangle, whose length was two or three times the width. Two or four rows of columns ran through the entire length, resulting in three or five aisles, and galleries were usually placed over these. The entrance was at the side or at one end, and the tribunal at the other on a raised dais, generally placed in a semicircular apse, which was sometimes partly cut off from the main body of the building by columns. Ranged round the apse were seats for the assessors, that in the centre, which was elevated above the rest, being occupied by the Prætor or Quæstor.

In front of the apse was the altar, where sacrifice was performed before commencing any important business.

The building was generally covered with a wooden roof, and

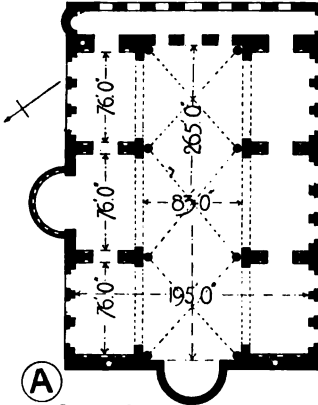
ROMAN EXAMPLES. VII.



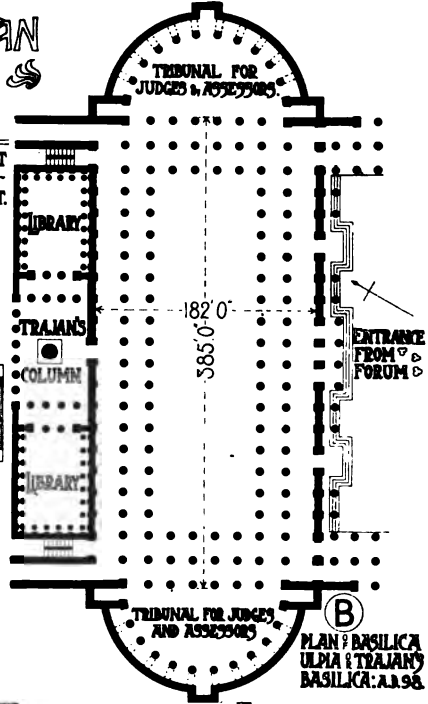
ROMAN EXAMPLES. VIII.

EXAMPLES OF ROMAN BASILICAS, ROOFED AND VAULTED.

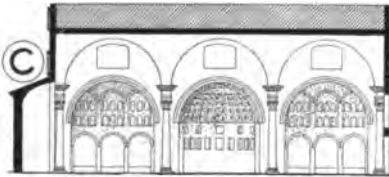
COLUMNS ATTACHED TO THE FACE OF PIERS SUPPORT THE MAIN VAULTS, BEING AN EARLY EXAMPLE OF COLLECTING THE WEIGHT ON ISOLATED POINTS OF SUPPORT.



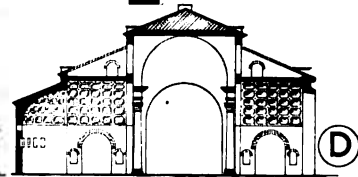
A
PLAN OF BASILICA MAXENTIUS, OR
CONSTANTINE: A.D. 312.



B
PLAN: BASILICA
ULPIA: TRAJAN'S
BASILICA: A.D. 98.

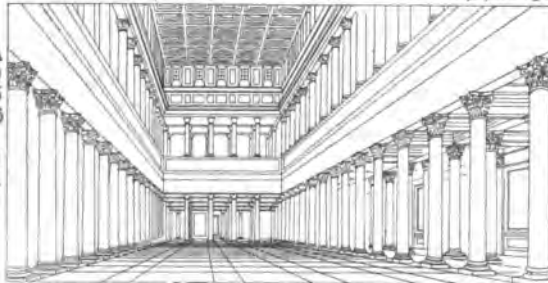


C
BASILICA MAXENTIUS, LONGITUDINAL SECTION.



D
BASILICA MAXENTIUS, TRANSVERSE SECTION.

BASILICA ULPIA
INTERIOR VIEW
APOLLONIUS
OF DAMASCUS
ARCHITECT.
(AS RESTORED
BY CANINA).



ACCORDING TO VITRUVIUS
A BASILICA WAS A
MEETING PLACE FOR
MERCHANTS & WAS
A COLUMNED STRUCTURE
ROOFED IN BUT
OFTEN OPEN AT THE
SIDES. THE PLAN IS
CONSIDERED TO BE
DERIVED FROM A GREEK
TEMPLE & GOTHIC
TEMPLES. INSTEAD OF THE CELLA
WALL & WITH UPPER
COLUMNS SUPPORTING
ROOF & HALLWAY
GREEK TEMPLES.

SCALE FOR PLANS & SECTIONS 100 50 0 100 200 FEET

the exterior seems to have been of small pretensions, in comparison with the interior.

Trajan's (the Ulpian) Basilica, Rome (A.D. 98) (Nos. 47^a, 58 B, E), of which Apollodorus of Damascus was the architect, was a fine example of the wooden roofed type. Entered from Trajan's Forum, it had a central nave 87 feet wide with double aisles, each 23 feet 9 inches wide, and an internal length excluding the apses of 385 feet. The total internal height was about 120 feet. The columns on the ground story separating the nave and aisles were of red granite from Syene, with white marble Corinthian capitals. At each end were semicircular apses, reached by flights of steps, having sacrificial altars in front of them. Galleries were formed over the side aisles, reached by steps as shown on the plan.

Adjoining the Basilica were the Greek and Latin libraries, and Trajan's famous Column (page 156) stood in an open court between them.

The Basilica of Maxentius or Constantine, Rome (A.D. 312) (Nos. 46 I, 47¹⁰, 58 A, C, D), formerly erroneously known as the Temple of Peace, consists of a central nave 265 feet long by 83 feet wide between the piers, crowned at a height of 120 feet by an immense groined vault in three compartments.

To the north and south are aisles roofed with three great semicircular vaults, each 76 feet in span, springing from walls placed at right angles to the nave. These walls had communicating openings formed in them, and aided by the weight of the aisle vaults, supported that of the nave. Monolithic columns were attached to the face of these piers, and supported pieces of entablature from which sprung the groined vaults.

There were two apses, one to the north and one to the west of the central nave.

Light was introduced in the upper part of the nave over the aisle vaults by means of lunettes, or semicircular windows in the wall formed by the intersecting vaulting. The building is similar as regards plan and design to the Tepidarium of the Thermæ (No. 59), and is in many respects a prototype of a Gothic structure, in which the thrust and weight of an intersecting vault are collected and brought down on piers built to receive them.

The vaults to the northern aisle still remain, exhibiting the deep coffering executed in brick work, and a portion of the main vault of concrete formed of pozzolana is still in position, although the column which was placed to carry it has been removed, thus showing the extraordinary tenacity of Roman concrete.

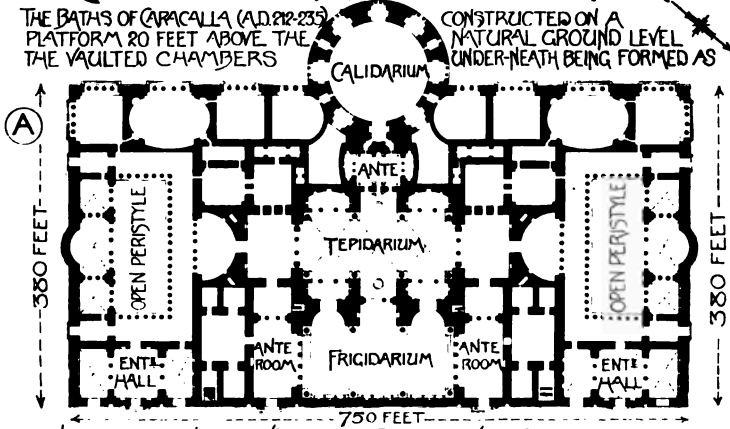
Other basilicas at Rome were the Basilica Porcia (B.C. 184), believed to be the oldest, the Basilica Julia (No. 47), and the Basilica Amelia (No. 47); and the basilicas at Pompeii, Farno, and Trèves, and at Silchester in England, may be mentioned.

ROMAN EXAMPLES. IX.

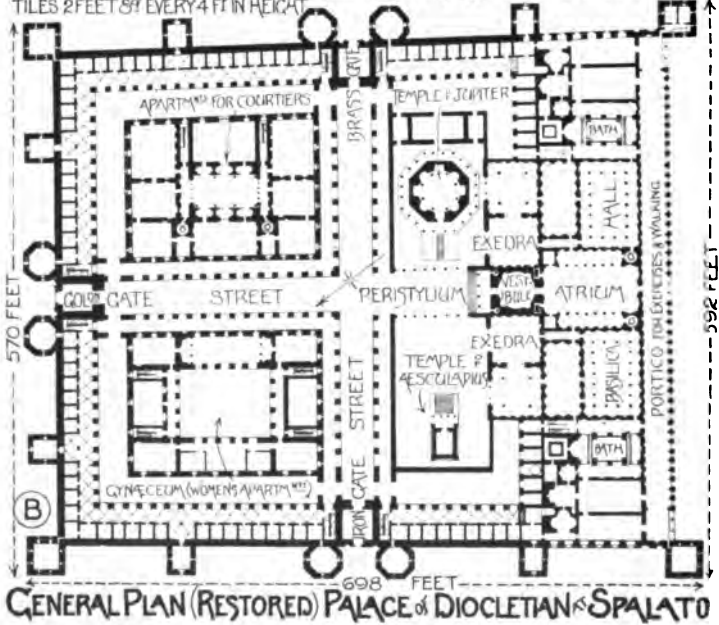
CENTRAL BLOCK OF BATHS OF CARACALLA ROME

THE BATHS OF CARACALLA (A.D. 212-235)
PLATFORM 20 FEET ABOVE THE
THE VAULTED CHAMBERS

CONSTRUCTED ON A
NATURAL GROUND LEVEL
UNDER-NEATH BEING FORMED AS



FURNACES FOR HEATING THE WATER & HOTROOMS ABOVE & AS STORAGE ROOMS FOR FUEL OIL & THE BATHS ACCOMMODATED 1600 BATHERS. WALLS OF CONCRETE OF LIME & PORTLANDA WITH THIN FACING OF TRIANGULAR BRICKS & BONDING COURSES OF LARGE TILES 2 FEET 5 IN EVERY 4 FT IN HEIGHT.



THERMÆ.

The **Thermæ** or great public baths are quite as characteristic of Roman civilization as the amphitheatres, being probably derived from the Greek gymnasia.

The principal existing remains are found at Rome and Pompeii in a ruined state, but much can be learned from the published drawings of the Italian architect, Palladio, made in the sixteenth century, when they were better preserved, and from the restorations of French students sent to Rome as prize winners of the *École des Beaux-Arts*.

The Thermæ supplied the place of the modern daily papers for the dissemination of news and gossip, and also answered in a measure the purposes of a modern club as a rendezvous of social life. A small charge of a quadrans ($\frac{1}{4}$ farthing) was sometimes made, but in later days they were opened free as a bribe to the populace by Emperors in search of popularity.

In general arrangement they usually consisted of three main parts:—

(a.) *A great central block.* This was planned for the baths proper, the processes of bathing resembling the modern Turkish bath. The Tepidarium (warm room for bathers to rest in), Calidarium (hot room, usually containing a warm water bath), Laconium or Sudatorium (the hottest room, usually a circular domed apartment), and a Frigidarium (cool room, usually containing a cold swimming bath—"piscina") were the most important apartments; added to which there were the Apodyteria (rooms for undressing), Unctuarium (rooms for oils, pomades or ointments, where the "aliptæ" anointed the bathers and performed the rubbing down, shampooing with the "strigillus" or scraper, oiling and sanding the body). The Sphæristerium (place for the games of ball), libraries, and small theatre occasionally formed part of the central structure.

(b.) *A large open space.* This surrounded the central block and was frequently laid out as a stadium, with raised seats for spectators. It was also used for various athletic exercises (such as wrestling, races, boxing), or for lounging, and portions were planted with trees and ornamented with statues.

(c.) *An outer ring of apartments.* These consisted of lecture rooms for the hearing of discourses, open colonnades, exedrae or recesses for the philosophers, poets and statesmen, and other necessary apartments. A large reservoir frequently occupied one side, being supplied by a special aqueduct from a distance. This reservoir supplied the Frigidarium, Tepidarium and Calidarium in succession. The external apartments were frequently let off as shops or utilized for the accommodation of the numerous slaves who formed part of the establishment.

The whole block was frequently raised on a high platform,

underneath which were the furnaces and other rooms for the service of the baths.

The Thermæ of Caracalla, Rome (A.D. 212-235) (Nos. 46 F, G, H, K and 59 A), accommodating 1,600 bathers, are the most important of all the remains, and give a splendid idea of their size and magnificence.

The entire site including gardens was raised on an artificial platform 20 feet high, measuring 1,150 feet (over one-fifth of a mile) each way, not including the segmental projection on three of the sides. Under this platform were communicating corridors leading to various parts of the establishment, vaulted chambers used as stores, the hypocaust, and furnaces for heating the water and hot air ducts.

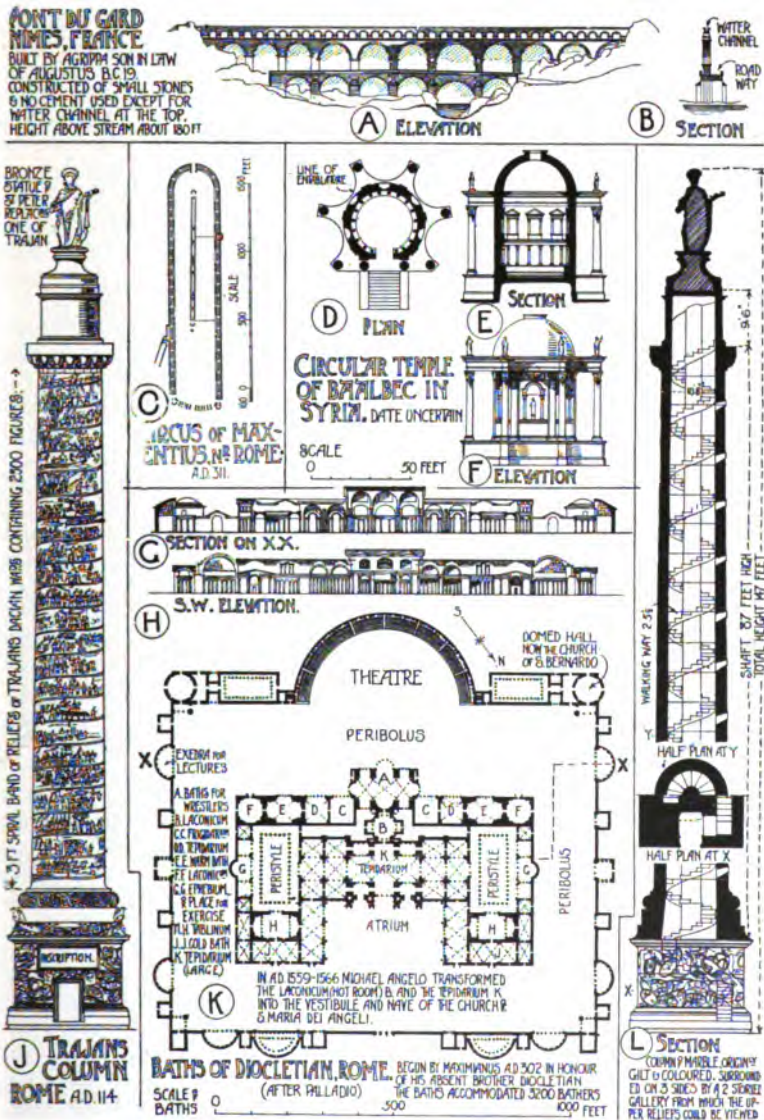
Along the road front was a colonnade having behind it a row of small chambers in two stories, the lower at the street level, probably used as shops, and the upper on the platform level, for private "slipper" baths.

The entrance to the establishment was in the centre of the north-eastern façade, and led to the large open enclosure laid out for wrestling and other games, around which, in the segmental projections and elsewhere, were grouped the various halls for dramatic representations and lectures. The central building, used entirely for bathing, measured 750 feet by 380 feet, and therefore covered an area of 285,000 square feet, *i.e.*, about equal to Westminster Palace (including Westminster Hall), but greater than either the British Museum or the London Law Courts. Only four doorways were formed on the north-east side, which was exposed to cold winds, but large columned openings, giving access to the gardens, were a feature of the south-western front.

Although now in ruins, restorations have been made which show the relative positions of the Tepidarium, Calidarium (with sudatio), Frigidarium (with piscina), Sphæristeria (for gymnastics), Apodyteria (dressing rooms), and other apartments. The planning of this and similar buildings is very instructive to architectural students and worthy of careful study, being laid out on axial lines, which, while providing for the practical requirements of the bathers, produced vistas through the various halls and saloons. Moreover, by the system of exedrae and screens of columns, loss of scale was prevented, and the vastness of the building was emphasized.

Internally the Tepidarium, forming the principal hall, around which the subsidiary apartments were grouped, constituted the controlling feature of the plan to which the other apartments were subordinated. It was 170 feet by 82 feet, roofed with an immense semicircular intersecting concrete vault, 108 feet above the floor, formed in three compartments, and supported on eight portions of entablature resting on granite columns, 38 feet high and 5 feet 4 inches in diameter, placed in front of the massive piers. This

ROMAN EXAMPLES. X



great apartment was lighted by clerestory windows, high in the walls, admitting light over the roofs of adjoining halls by means of the intersecting vault, which was constructed on a similar system to that described for the Basilica of Maxentius (page 139). S. George's Hall, Liverpool, is of similar dimensions to the Tepidarium of Caracalla's *Thermæ*, but with five bays instead of three.

The Calidarium was roofed with a dome similar to that of the Pantheon.

The Frigidarium was probably open to the sky, although as many tons of T iron were found below the surface of the bath, some suppose it to have been covered with a roof of iron joists (probably cased with bronze) and concrete. Viollet-le-duc has a drawing in his lectures of the Frigidarium restored, giving an excellent idea of its probable original appearance.

The general adornment and color treatment of the interior must have been of great richness, and in marked contrast to the exterior, indicating a further secession from Greek principles.

Sumptuous internal magnificence was aimed at in all the great *Thermæ*, the pavings were patterned with mosaic cubes of bright colors, either planned in geometrical patterns or with figures of athletes; the lower parts of the walls were sheathed with many colored marbles, and the upper parts with enriched and modelled stucco bright with color; the great columns on which rested the vault springers were either of granite, porphyry, giallo antico, alabaster or other rare marbles from the *Ægean* islands. Various colored marble columns were used constructively to support the upper balconies and the peristyle roofs, and decoratively to form with their entablatures and pediments frames for the superimposed niches in the walls.

The surface of the great vaults was also richly ornamented by means of coffering, or covered with bold figures, decorations in black and white, or colored glass mosaic.

In these magnificent halls thus sumptuously decorated some of the finest sculpture of antiquity was displayed. This was brought largely from Greece or executed in Rome by Greek artists, and at the excavation of the *Thermæ* during the Renaissance period much of it found its way into the Vatican and other museums in Rome, and in the principal European cities.

Finally, additional interest was given to the interiors by the perpetual streams of running water, issuing from the mouths of sculptured lions in marble or brightly polished silver, falling into capacious marble basins and producing a delicious cooling effect in the hot sultry weather.

The exteriors appear to have been treated very plainly in stucco, or more wisely left as impressive masses of plain brickwork, perhaps banded or dressed with bricks of a different color.

The unbounded license of the public baths, and their connection

with amusements generally, caused them to be proscribed by the Early Christians, who held that bathing might be used for cleanliness, but not for pleasure.

In the fifth century the large Roman *Thermæ* fell into disuse and decay, caused by the destruction of the aqueducts by the Huns and the gradual decrease of the Roman population.

The *Thermæ of Agrippa, Rome* (B.C. 27) (No. 46 L), were the earliest example. They have completely disappeared, but an idea can be obtained from the measured drawings of Palladio, published in Cameron's "Baths of the Romans," 1772.

The *Thermæ of Titus, Rome* (A.D. 80) (No. 69 B), were built on the foundations of Nero's Golden House.

The *Thermæ of Diocletian, Rome* (A.D. 302) (No. 46 J), had a plan, shown in a restored condition in No. 60 K, from which it will be seen that the general distribution resembled the Baths of Caracalla. The Tepidarium is 200 feet long by 80 feet wide and 90 feet high, and is covered with quadripartite vaulting of tufa concrete, springing from eight monolithic columns of Egyptian granite, 50 feet high and 5 feet in diameter, having Composite and Corinthian capitals of white marble each supporting a portion of highly ornamental entablature. This Tepidarium was converted by Michael Angelo, in A.D. 1561, into the Church of S. M. degli Angeli, and in 1740 a projecting choir was formed on one side by Vanvitelli, who thus converted the nave of the church into a kind of transept.

The *Balneum* or small private bath was much used, and the three examples at Pompeii indicate their general characteristics and manner of use. These baths were heated by means of hot air in flues under the floors, and in the walls from the hypocaust or furnace in the basement (No. 46 F, G, H).

Typical Roman baths are shown on No. 69 G, J.

The so-called *Temple of Minerva Medica, Rome* (Nos. 46 M and 83 A, B), is now generally regarded as a nymphæum attached to the Baths of Gallenius (A.D. 266). The absence of a hypocaust or of flue tiles in the walls prevent it from being considered as a Calidarium.

It is a decagonal on plan, 80 feet in diameter, with semicircular niches to nine of the sides, the tenth being the entrance. Above are ten windows of large size at the base of the dome, in order to give the necessary light and air to the plants. The dome is formed of concrete ribbed with tiles, bearing a remarkable similarity to S. Vitale at Ravenna (No. 83 C, D). It is particularly interesting in that the rudiments of the pendentive (see glossary) system are to be seen in the manner of setting the dome on its decagonal base, a system afterwards carried still further by the Byzantines. Buttresses were placed at points as required, admitting of the use of thinner walls, which is an advance on the construction of the

ROMAN ARCHITECTURE.



61. PONT DU GARD, NÎMES, FRANCE.

Pantheon (No. 54), and a step towards Gothic principles of construction. The pendentives are of the rudest kind, and probably were entirely masked by the original decoration.

THEATRES AND AMPHITHEATRES.

The design of Greek theatres was adapted to suit Roman requirements. The auditorium, instead of being rather more than a semicircle as in the Greek theatres, was here restricted to a semicircle, and consisted of tiers of seats one above the other, with wide passages and staircases communicating with the external porticos on each story. At the ground level, separating the auditorium of sloping seats from the stage, was a semicircular area which was occupied by the Senators, and which in its original circular plan in Greek theatres was occupied by the chorus. The stage thus becoming all important, was raised considerably and treated with great richness, and became connected more completely with the auditorium. Theatres were still constructed on the slope of a hill, but where the site did not allow of this they were, by means of the new art of vaulting, constructed tier upon tier of connecting corridors, in which the people might retreat in case of sudden showers.

The **Theatre at Orange**, South France (No. 34 B), held 7,000 spectators, and is an example where the auditorium is constructed and not hollowed out of the side of a hill. In diameter it is 340 feet between the inclosing walls. Staircases for access to the various levels were placed on either side of the stage, which is 203 feet wide by 45 feet deep, and inclosed by return walls at right angles to the back wall. The great wall at the back of this stage, 314 feet long by 116 feet high, is ornamented by blind arcading, and has at the summit two tiers of corbel stones, pierced with holes, through which the velarium poles were placed. It originally had a portico attached to it.

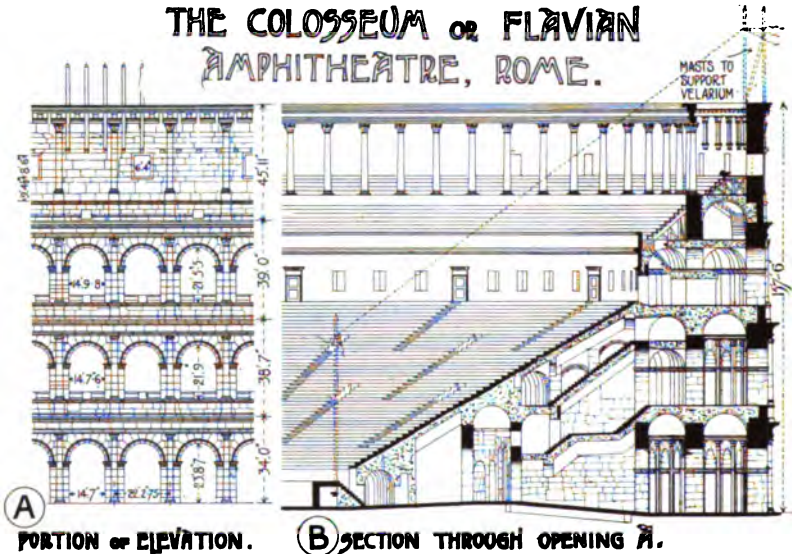
The **Theatre of Marcellus, Rome** (B.C. 23-13), is the only existing example of a theatre in that city. The remains consist of the arcading, two stories high, of the semicircular auditorium, the façade of which was ornamented with the Tuscan order and the Ionic order superimposed.

The **Theatre of Herodes Atticus, Athens** (No. 17) (A.D. 161), is also a fine example, seating 6,000 people. It is partly hewn out of the Acropolis rock and partly constructed, the seats having a marble casing. It is held to have been roofed with cedar, but this, however, probably only applied to the stage.

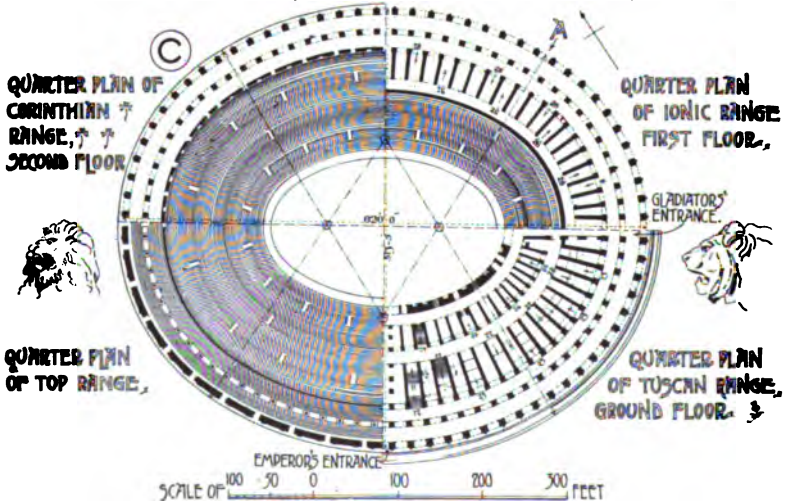
Pompeii had two important theatres, which in recent years have been excavated. The theatres at Taormina, on the east coast of Sicily, at Fiesole, near Florence, and Aspendus, in Asia Minor, are other examples.

ROMAN EXAMPLES. XI.

THE COLOSSEUM or FLAVIAN AMPHITHEATRE, ROME.



BUILT BY VESPASIAN & TITUS AND COMPLETED 80 A.D. THE CONSTRUCTION IS NOTABLE FOR THE SKILFUL USE OF VARIOUS MATERIALS SO AS TO OBTAIN THE GREATEST BENEFIT FROM THEIR SPECIAL QUALITIES. THE MATERIALS USED ARE (A) CONCRETE OF 3 VARIETIES VIZ, i COMPOSED OF LAVA FOR FOUNDATIONS WHERE GREATEST STRENGTH REQUIRED, ii TUFF & BRICK-BATS FOR WALLS WHERE LESS STRENGTH REQUIRED & iii COMPOSED OF RUMICE-STONE FOR VAULTS WHERE LIGHTNESS REQUIRED. (B) BRICK FACING, (C) BLOCKS OF TUFF & TRAVERTINE, (D) MARBLE FOR COLUMNS, CORNICES, SEATS, & ORNAMENTAL PURPOSES. EXTERNAL FACADE COMPOSED OF BLOCKS OF TRAVERTINE SET WITHOUT MORTAR & CLAMPED TO EACH OTHER.



The **amphitheatres** are characteristic Roman buildings, being found in every important settlement, and in addition to their normal purposes were used for naval exhibitions, the water drains for flooding the arena still existing in many examples. The modern Spanish bull rings to some degree give an idea of the arrangement and uses of Roman amphitheatres. These are good exponents of the character and life of the Romans, who had greater love for mortal combats, which were considered to be a good training for a nation of warriors, than for the tame mimicry of the stage.

The **Flavian Amphitheatre, (The Colosseum), Rome** (Nos. 62 and 63), commenced by Vespasian in A.D. 70, and completed (with the exception of the upper story) by Domitian in A.D. 82, is the most important example. The model in the Crystal Palace gives a good idea of the general distribution of its parts. In plan it is a type of all the examples, consisting of a vast ellipse 620 feet by 513 feet, having externally eighty openings on each story, those on the ground floor forming entrances, by means of which the various tiers of seats are reached. The arena proper is an oval 287 feet by 180 feet, surrounded by a wall 15 feet high. The seats, in solid stone, rise up from the arena, having underneath them corridors and staircases. The dens for the wild beasts were immediately under the lowest tiers of seats, and consequently opened on to the arena, as at Verona (No. 64). The auditorium has four ranges of seats, the two lower forming the grand tiers, the third separated from the second by a wall, and the top range under the peristyle forming the later addition. Access to the various seats is from the eighty entrances by means of staircases placed between the radiating walls and by corridors, placed at intervals as shown. The radiating walls were cleverly constructed, concrete being used where least weight, tufa stone where more weight, and travertine stone where the heaviest pressures had to be supported (No. 62 B). The masonry was laid without mortar, and the construction is strong and solid, being of an engineering character. The system is one of concrete vaults resting on walls of the same material, 2 feet 3 inches thick, faced with travertine stone, 4 feet thick, and having an internal lining of 9 inches of brickwork, making 7 feet in total thickness. The supports have been calculated at one-sixth of the whole area of the building.

The constructive principle consists of wedge-shaped piers radiating inwards, the vaults running downwards to the centre from the high inclosing walls; consequently no building is more durable or more difficult to destroy—a feeling well expressed by the line :

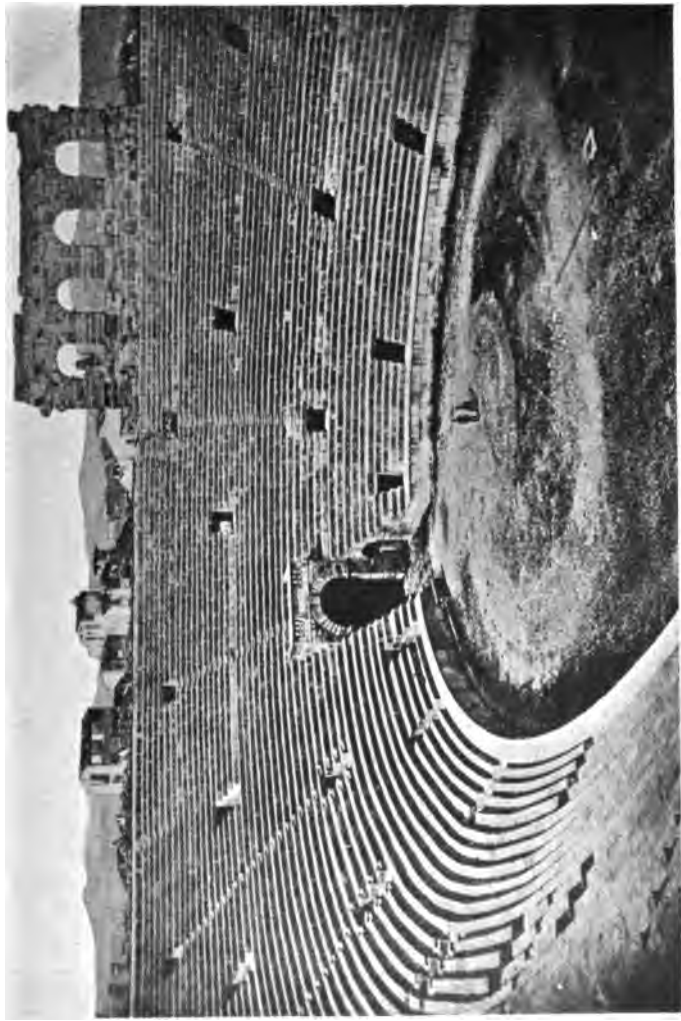
“ When falls the Colosseum, Rome shall fall.”

ROMAN ARCHITECTURE.



63.

THE COLOSSEUM (OR FLAVIAN AMPHITHEATRE), ROME.



THE AMPHITHEATRE, VERONA.
Internal view.

The external façade is divided into four stories. The three lower ones have their walls pierced with arches, and are ornamented with half columns of the Tuscan, Ionic, and Corinthian orders, the two latter being on pedestals. The upper story has Corinthian pilasters, and the height to the top of this order is 157 feet. Between the pilasters are the corbels used to support the masts of the velarium.

In criticizing the general architectural character of this wonderful building (No. 63), points worthy of notice are:—

- i. The multiplicity of its parts, viz., three tiers of apparently countless arcades encircling the exterior, divided and united by three tiers of orders.
- ii. The grand sweeping lines of the unbroken entablatures which entirely surround the building.
- iii. The purely decorative use of the Classic orders of architecture which being superimposed are in strong contrast to the Grecian method of single orders.
- iv. The thick piers behind the orders, connected by eighty arches and supporting the weight of the structure.

The proportions of the attached columns on the façade, which all have the same lower diameter are unusual:—The Tuscan column is about $9\frac{1}{2}$ diameters high and the Ionic and Corinthian about $8\frac{3}{4}$ diameters.

The Colosseum was used as a stone quarry by the builders of later times, materials being taken from it for the construction of many Renaissance buildings (page 456).

The **Amphitheatre, Verona** (No. 64), is in splendid preservation, all the stone seats being intact, although only four bays of the external wall are still standing.

Other well-known examples are the Amphitheatres at Pompeii, Capua, Pola in Istria, Nîmes, Arles, El Djem near Carthage, and remains of a roughly made example at Dorchester, in Dorset.

CIRCI.

The plan of a Roman Circus was an adaptation of a Greek stadium, but, however, was used for chariot or horse races, while the Greek stadium was principally used for foot races and athletic sports. At Rome there were several important examples, among which were the Circus Maximus and those of Maxentius, Domitian, Hadrian, Nero, Flaminus, and Sallust.

The **Circus Maxentius** (No. 60 c) near **Rome**, also known as the Circus of Romulus, was built by Maxentius in A.D. 311. Although only part of it now remains, it is the most perfect example of a Roman Circus existing. It consisted of a long open circular-ended arena with a "spina" along its axis. Surrounding this were rows of marble seats supported by raking vaults and an

external wall of concrete faced with "opus mixtum" (page 117). At one end were the "carceres" or stalls for horses and chariots, with a central entrance for processions and two side entrances, and at the semicircular end was the "porta triumphalis."

TRIUMPHAL ARCHES AND PILLARS OF VICTORY.

These were erected to emperors or generals in honour of their victories. They consisted either of a single arch or of a central arch with a smaller one on either side. These rest on an impost, and have Corinthian or Composite columns on either side, and were adorned with architectural enrichments, statuary, and bas-reliefs relating to campaigns. An attic or surmounting mass of stonework was placed above, having a dedicatory inscription.

(a.) The *single-arched type*, of which the central arch at Hyde Park Corner, London, is an example.

The **Arch of Titus, Rome** (A.D. 81) (Nos. 47, 49, 69 A, c), commemorates the capture of Jerusalem in A.D. 70. On each side of the arch are semi-engaged columns of the Composite order, being the earliest known examples, and three-quarter columns occur at the angles. The archway has its soffit ornamented with deep coffers, in the centre of which is a relief of the apotheosis of Titus. The inner jambs have reliefs of the emperor in a triumphal car, being crowned by victory, on the one side, and the spoils taken from the Temple at Jerusalem on the other. The central keystones project considerably in order to support the main architrave, and are richly carved, as shown in No. 67 B.

Other well-known examples of this type are the **Arches of Trajan at Ancona** (A.D. 113), **Trajan at Beneventum** (A.D. 114) (No. 70 D), the **Sergii at Pola**, **Augustus at Susa** (Piedmont) (B.C. 7), **Augustus at Aosta** (Piedmont), **Augustus at Rimini** (A.D. 27), and **Hadrian at Athens**.

The **Arch of the Goldsmiths, Rome** (A.D. 204) (No. 49), is not of arched construction, the opening being spanned by an entablature.

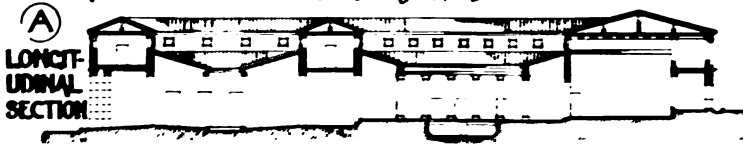
(b.) The *three-arched type*, of which the Marble Arch, London, gives a general idea.

The **Arch of Septimius Severus, Rome** (A.D. 204) (Nos. 47, 57, 65, 66 and 70), built to commemorate Parthian victories, has detached Composite columns resting on pedestals. A description is given on each of the illustrations Nos. 57 and 65.

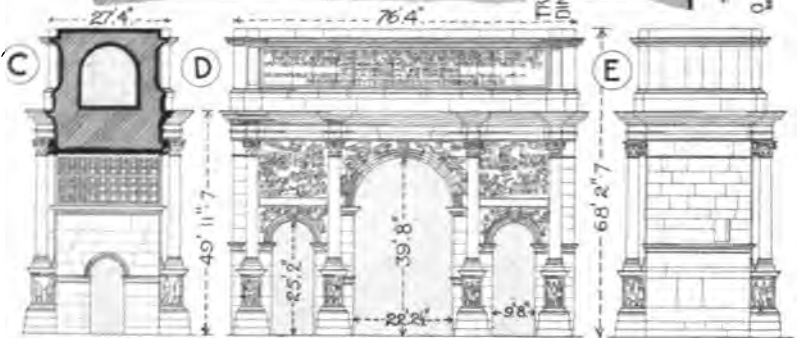
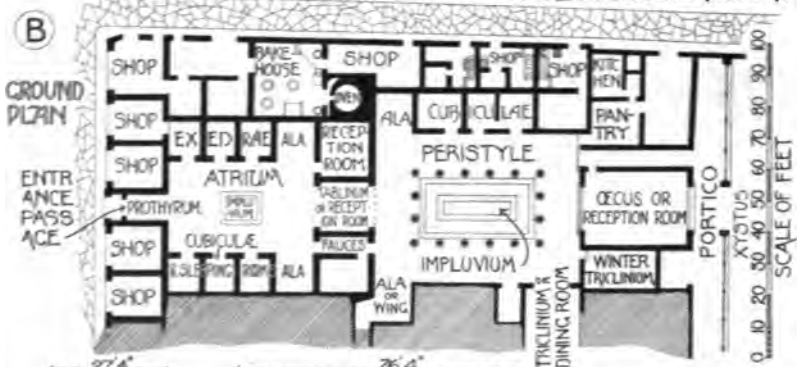
The **Arch of Constantine, Rome** (A.D. 312) (No. 47), was built in honour of Constantine's victory over Maxentius, and is one of the best proportioned examples. It has detached Corinthian columns supporting an entablature, which returns round each column, and above the attic were originally a quadriga, horses, and statues.

ROMAN EXAMPLES. XII.

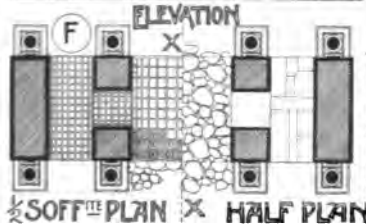
HOUSE OF Pansa, AT POMPEII



IN ROMAN DWELLING HOUSES THE ATRIUM WAS THE PUBLIC PART OF THE BUILDING IN WHICH THE CLIENTS WERE ACCUSTOMED TO AWAIT THEIR PATRON, THUS RESEMBLING A MODERN HALL. THE PERISTYLE FORMED THE CENTRE OF THE RESIDENTIAL PORTION. THE ATRIUM & PERISTYLE WERE OPEN TO THE SKY GIVING LIGHT & AIR TO THE SURROUNDING ROOMS



SECTION X-X.
ARCH OF
SEPTIMIUS
SEVERUS
ROME 204 B.



END ELEVATION
THIS TRIUMPHAL ARCH WAS DEDICATED BY THE ROMANS IN HONOR OF THE EMPEROR SEPTIMIUS SEVERUS FOR HIS VICTORIES IN THE EAST IN CONJUNCTION WITH HIS 2 SONS CARACALLA & GETA

ROMAN ARCHITECTURE.



ARCH OF SEPTIMIUS SEVERUS, ROME.

The **Arch at Orange** is one of the finest examples of this type outside Italy. It has semi-attached Corinthian columns between the arches and three-quarter columns at the angles.

Besides these, mention might be made of the **Arch of Janus, Rome**, in the Forum Boarium, built in the reign of Septimius Severus, a four-way arch built as a shelter at the junction of four roads; and also the arches at Palmyra and in North Africa.

Arches were also erected to form entrances to towns or bridges, and in such cases might serve the purposes of defence. Of this type of gateway the **Porta Nigra, Trèves**, the **Porte S. André, Autun**, the **Porte des Mars, Rheims**, and the **Porta Aurea, Spalato** (Palace of Diocletian), are among the best known.

Pillars of victory, or memorial columns, were sometimes erected to record the triumphs of victorious generals.

Trajan's Column (No. 58 B, 60 J, L), was erected in connection with his Basilica (page 139), and stood in an open court with galleries around at different levels, from which the bas-reliefs on its shaft could be viewed.

"The sculptures wind aloft
And lead, through various toils, up the rough steep
The hero to the skies."

The column, of the Roman Doric order, stands on a pedestal 16 feet 8 inches square, and 18 feet high, ornamented with sculptured trophies on three sides, and having a doorway on the fourth. The column is 12 feet in diameter at the base and is provided with an internal spiral staircase of marble, lighted by small openings. Its total height is 147 feet. The sculptures, numbering over 2,500 human figures, besides animals, and carved on a spiral band over 800 feet long and about 3 feet 6 inches deep, were probably intended to represent the unwinding of a scroll of parchment illustrating incidents of Trajan's war with the Dacians. There is a full-sized cast in the Victoria and Albert Museum.

The column erected in A.D. 161 to the memory of Antoninus Pius and that erected to Marcus Aurelius in memory of his victories over the Germans (A.D. 167-179) were founded on the design of Trajan's Column.

Rostral columns, a type of memorial which, in the time of the emperors, was numerous, were erected to celebrate naval victories. Rostra, or prows of ships captured after a naval victory, were used in their ornamentation (No. 69 H), and a recital of the deeds which led to their erection was carved upon them.

TOMBS.

In contrast with those of the Greeks, tombs were numerous, and bear considerable similarity to Etruscan examples, in particular that of Regolini Galassi at Cervetri.

The Romans either buried or cremated their dead, both sarcophagi (No. 69 M) and urns being sometimes found in the same tomb chamber. The bodies of the emperors during the first three centuries were usually burnt on magnificent pyres, from which an eagle was set free, symbolizing the escaping soul of the dead emperor.

In the second century A.D. the practice of cremation became less usual; the richer classes embalmed their dead and placed them in massive and costly sarcophagi instead of the smaller receptacle for ashes.

There are five varieties of Roman tombs, as indicated on No. 52:—

(a.) **Columbaria.**—These were placed in subterranean vaults or caves, which are now known as catacombs, and have rows of niches in the walls resembling pigeon-holes—hence the name. Each niche was reserved for a vase containing the ashes of the deceased, with the name inscribed thereon. Sarcophagi were also placed in these tomb-chambers, some of which in addition had “loculi” or recesses for corpses, as in the *Tomb of the Gens Cornelia, Rome*.

(b.) **Monumental tombs** consisted of tower-shaped blocks, square or circular, resting on a quadrangular structure and crowned with a pyramidal roof. These may be survivals of the prehistoric tumulus of earth with its base strengthened by a ring of stones.

The *Tomb of Cæcilia Metella, Rome* (B.C. 60), (on the Via Appia), has a podium 100 feet square, supporting a circular mass 94 feet in diameter, probably surmounted by a conical roof. The tomb-chamber was in the interior, and the whole was faced with travertine and crowned by an entablature, the frieze of which is carved with ox-skulls and festoons.

The *Mausoleum of Augustus, Rome* (B.C. 28), was erected for himself and his heirs. Little is now left, but it is known, from descriptions of Strabo, Tacitus, and others, to have had a square basement surrounded with a portico of columns and supporting a circular mass, 220 feet in diameter, containing the mortuary chambers, the whole being capped by a mound of earth laid out in terraces and planted with cyprus and evergreen trees, and crowned with a colossal statue of Augustus. In the middle ages it was converted into a fortress, and in the eighteenth century, what remained of it, was used as a theatre.

The *Mausoleum of Hadrian, Rome* (A.D. 135) was one of the most important of these monumental tombs. It is now the Castle of S. Angelo, and consists of a square basement about 300 feet each way and 75 feet high, supporting an immense circular tower 230 feet in diameter and 140 feet high, having a peristyle of marble columns, surmounted by a conical marble dome, as other examples. It was built of concrete, in which,

towards the centre of the mass, were formed the sepulchral chamber and converging passages, which slope upwards from the ground level. On the whole, the structure has been much altered since its construction, being converted in the middle ages into a fortress by the Popes, and is now used as a military barrack.

(c.) **Pyramid tombs**, probably due to the introduction of Egyptian ideas, were also adopted, as in the *Pyramid of Cestius* (B.C. 62-12), which is formed of concrete faced with white marble, and has an internal tomb-chamber, the vault and walls being decorated with figure paintings.

(d.) **Smaller tombs**, as isolated monuments, were often erected along the sides of roads leading from cities, as at Rome and in the Street of Tombs, Pompeii:

"Those ancient roads
With tombs high verged, the solemn paths of Fame;
Deserve they not regard! o'er whose broad flints
Such crowds have roll'd; so many storms of war,
So many poms, so many wondering realms."—DYER.

These often have subterranean tomb-chambers for sarcophagi with niches for cinerary urns, and the walls and vaults were ornamented with colored reliefs in stucco, as in the *Tomb of the Pancratii*.

Above the ground the tomb resembled a small temple, often with a prostyle portico, and the upper chamber contained portraits or statues of deities and served as mortuary chapels.

(e.) **Eastern tombs**.—The districts of Palmyra, Jerusalem and Petra in Syria; Caria in Asia Minor, and Algeria and Cyrene in Africa possess many examples, some rock-cut, and some structural.

The *Tomb at Mylassa*, in Asia Minor, is one of the most interesting examples of the latter. The illustration (No. 52) will show its general characteristics.

The *Tomb at Dugga*, near Tunis (No. 52 G), somewhat resembles that at Mylassa, but with a walled-up colonnade.

In addition to the foregoing, memorial structures or cenotaphs were occasionally erected.

The *Monument of S. Remi*, in Provence (B.C. first century) (No. 52 H), consists of a high pedestal ornamented with bas-reliefs and supporting a story of engaged Corinthian angle columns with arched openings between. Above is a circular story with fluted Corinthian columns, supporting an entablature and conical stone roof.

The *Igel Monument*, near Trèves, Germany, is of similar design.

AQUEDUCTS.

The aqueducts, although more of an engineering than architectural character, fulfilling a utilitarian purpose only, formed by

their size and proportion striking features of the Roman landscape. Throughout the Empire remains are to be seen showing the importance put by the Romans upon an adequate water supply to their cities. Rome had to be especially well supplied owing to the inferiority of the local service and the large quantity required for the reservoirs, great thermæ and public fountains, to say nothing of the domestic supply for its large population.

In any views of the Campagna near Rome, the ruined aqueducts are striking features, and in approaching the Eternal City in the days of its glory, these enormous arched waterways must have impressed the beholder. Vitruvius (Book VIII., chapter vii.) gives interesting information on the subject, which is added to from other sources by Middleton.

The Romans were acquainted with the simple hydraulic law that water will rise to its own level in pipes, and the upper rooms of their houses were supplied by "rising mains" in the same way as modern buildings. Owing, however, to the fact that pipes had then to be made of weak and costly lead or bronze (cheap and strong cast-iron pipes not being in use), it was found to be more economical by the use of slave labour to construct aqueducts of stone, or concrete faced with brick, having almost level water channels, above or below ground (Vitruvius recommends a fall of 6 inches to every 100 feet), on immense arches above ground, a system which even in modern times has been followed in the Croton Aqueduct which supplies New York City.

The principle of all the examples is similar. A smooth channel (*specus*) lined with a hard cement, is carried on arches, often in several tiers and sometimes of immense height (say 100 feet), conveying the water from the high ground, across valleys, to the city reservoirs. Many of them follow a circuitous course in order to prevent the slope of the channel being too steep when the source of the water was high above the required level of distribution in Rome. In the time of Augustus Cæsar there were nine of these aqueducts supplying Rome with water.

The **Aqua Marcia** (B.C. 144) and the **Aqua Claudia** (A.D. 38) still supply water to Rome. The "**Anio Novus**" (A.D. 38), sixty-two miles in length, entered the city on arches above those of the Aqua Claudia.

The **Pont-du-Gard**, near **Nîmes**, in France (B.C. 19) (Nos. 60 A, B and 61), is the finest existing example. It forms part of an aqueduct twenty-five miles long, bringing water from the neighbourhood of Uzès. It is about 900 feet long, and is formed of three tiers of arches crossing a valley 180 feet above the River Gard. On the two lower tiers the central arch is the widest, and the others vary in width. On the uppermost tier there are thirty-five arches having 14 feet span, supporting the water-channel. The masonry is laid dry without mortar and, as will be seen on

No. 61, some of the arch voussoirs of the intermediate tier projected to carry the temporary centering.

Other aqueducts exist at Tarragona and Segovia, Spalato and elsewhere.

BRIDGES.

The chief characteristics of Roman bridges were solidity and simplicity, with a view to their withstanding the ravages of time and the elements. The roadway was generally kept level throughout.

The **Bridge at Rimini** is the best preserved in Italy and has five arches.

There are examples of two types of Roman bridges in Spain which are equally impressive. (*a.*) The many-arched type, as exemplified in the extreme length of the bridges at Cordova and Alcantara. (*b.*) The single-arched type, of which the romantic sweep of the bridge at Toledo, spanning the rocky valley of the Tagus, is the best example.

PALACES.

Of the Roman palaces the ruins only remain, but there is enough to show their enormous extent and imposing character.

The Palaces of the Roman Emperors.—The principal approach was from the Forum Romanum, by a road which branched off from the Via Sacra, on the west side of the Arch of Titus (No. 47).

Excavations on the Palatine Hill, commenced by Napoleon III. in 1863, and afterwards continued by the Italian Government, have revealed remains of a group of magnificent palaces. These, commenced by Augustus (A.D. 3), and having additions by Tiberius, Caligula, Nero and Domitian, were remodelled by Septimius Severus, and the giant remains attributed to him will probably impress the student of architecture most when visiting the site.

The chief apartments in these palaces were :—The Tablinum or Throne-room ; the Basilica, or hall for administering justice ; the Peristylum, a square garden surrounded by a colonnade ; the Triclinium, or banqueting hall ; the Lararium, or apartment for statues of the household gods ; and the Nymphæum. Besides these there were many minor chambers of service, whose uses cannot now be ascertained.

The disposition of the buildings was governed by axial lines producing magnificent vistas. Irregular spaces, caused by additions being made from time to time, were rendered symmetrical by the use of hemicycles and other devices, disguising the

different angles of the buildings in relation to each other, a method frequently used by modern architects.

The **Palace of Diocletian, Spalato**, in Dalmatia (No. 59) (A.D. 300), is another famous example, which formed the greater part of the mediæval town of Spalato, and has thus been called a city in a house. It may be described as a royal country house, or better, perhaps, as a *château* by the sea.

The original plan of the palace was approximately a rectangle, occupying an area of $9\frac{1}{2}$ acres, being thus almost equal in extent to the Escorial in Spain (page 537, No. 238). There was a square tower at each angle, and in the centre of each of the north, east and west sides was a gateway flanked by octagonal towers, between which and those at the angles were subsidiary towers. These gateways formed entrances to porticoed avenues 36 feet wide, which, meeting in the centre, gave the palace the character of a Roman camp. On each of the façades, between the towers, were rich entrance gateways; the "golden" on the north, the "iron" on the west, and the "brazen" on the east, ending these main avenues, which divided the inclosed area into four parts, each assigned to a particular purpose. The two northern portions were probably for the guests and principal officers of the household; while the whole of the southern portion was devoted to the palace, including two temples, that of Jupiter (see under circular temples, pp. 130, 136) and *Æsculapius* (page 125) and the baths. A circular vestibule, with a front portico in *antis*, formed an entrance to a suite of nine chambers overlooking the sea; here were placed the private apartments and baths of the emperor, the finest being the portico, 524 feet by 24 feet, on the southern sea front. This served as a connecting gallery, and was probably filled with works of art (*cf.* Elizabethan gallery, page 555). The columns to the upper portion were detached and rested on carved corbels, a feature also seen in the golden gateway.

Lining the inclosing walls of the whole area, on three sides, internally, were the cells that lodged the slaves and soldiers of the imperial retinue. The octagonal temple, and the more lofty halls of the palace proper, being visible above the inclosing walls in distant views by land and sea, were impressive features of the group.

The architectural character is somewhat debased in style, broken and curved pediments with decadent detail being employed. The palace has a value, however, as a transitional example, for the entablature of the peristyle is formed as an arch, thus losing its constructive significance, and in the northern gateway arches rest directly on capitals without the intervention of an entablature, being an early example of a principle carried to its logical conclusion in the Romanesque and Gothic styles.

THE DWELLINGS OF THE ROMANS.

These may be classified under—(a.) The *domus*, or private house; (b.) The *villa*, or country house; and (c.) The *insula*, or many-storied tenement.

The dwellings of the Greeks have already been touched upon (page 92), and there seems every reason to believe that Roman dwellings were evolved from them. They each possessed an atrium, forming the more public portion of the building, and a peristyle beyond, forming the centre of the family apartments. At Rome, the Atrium Vestæ, or House of the Vestal Virgins (No. 47), and the House of Livia, are interesting examples.

The excavations at **Pompeii** and **Herculaneum** have thrown considerable light on this important subject, and as Pompeii was a Græco-Roman city, the remains which have been excavated are believed to differ but slightly from the later Greek dwellings. These Pompeian houses owe their preservation to an eruption of Vesuvius, which in A.D. 79 overwhelmed the city, burying it in ashes to a depth of 10 feet.

The streets of Pompeii were narrow (many only 8, 12, or 15 feet), the widest being 23 feet 6 inches, with a roadway 13 feet 6 inches and paths 5 feet wide. The houses had plain fronts to the street, the frontage on either side of the entrance passage being let off as shops. The absence of windows on the fronts is explained by some as being due to a lack of glass, in which case openings towards the street would have rendered privacy impossible.

The rooms were lighted by openings giving on to internal courts already mentioned, as are Eastern houses to this day, and the inns of France and England in former days.

The Pompeian houses are mostly one story in height, but stairs and traces of upper floors exist. Such upper stories were probably of wood, but as a decree was passed in the time of Augustus limiting the height of houses in Rome to 75 feet, brick or masonry buildings must have been largely erected. The openings were small, the light being strong in the sunny climate of Italy.

The **House of Pansa** (No. 65, A, B) may be taken as a good type of *domus* or ordinary private house. It was surrounded by streets on three sides, the garden occupying the fourth, and, besides the house proper, consisted of shops, bakeries, and three smaller houses. A prothyrum, or entrance passage, led direct from the street entrance to the atrium, which served as the public waiting-room for retainers and clients, and from which the more private portions of the house were shut off. The atrium was open to the sky in the centre, with a "lean-to" or sloping roof supported by brackets round all four sides. The impluvium, or "water cistern," for receiving the rain-water from these roofs, was sunk in the centre of the pavement, while round were grouped the front rooms, probably used by servants or guests, or as semi-public

rooms, *e.g.*, libraries, each receiving sufficient light through the door openings.

An open saloon, or *tablinum*, with "fauces," or narrow passages, led to the peristyle, or inner court, often the garden of the house; and around were grouped the *cubiculæ* or bedrooms, the *triclinium*, or dining-room (summer and winter), with different aspects, the *œcus*, or reception room, and the *alæ*, or recesses, for conversation. The dining-rooms were fitted with three couches each for three people to recline upon, as nine was the recognized number for a Roman feast. The peristyle was the centre of the private part of the house, corresponding to the hall of Elizabethan times, and it usually had a small shrine or altar (Nos. 68 G, 69 E).

The walls and floors were richly decorated with mosaics and paintings.

The kitchen and pantry are in the side of the peristyle, furthest from the entrance.

The **Houses of the Faun, Vettius, Diomede, the Tragic Poet, and Sallust**, are other well-known examples of Pompeian houses which have their floors, walls, and vaults decorated in a characteristic style, to which the name "Pompeian" is now applied, and which were furnished with domestic implements such as candelabra (Nos. 68, 69), and fountains. The floors of these houses were of patterned mosaic, either in black and white (No. 69 K) or of colored marbles. The walls were either painted to imitate marble or executed in fresco, the darkest colors of the decorative scheme being placed nearer the ground. Pictures were sometimes framed with architectural features consisting of slender shafts, suggestive of a metallic origin, with entablatures in perspective. The ceilings, which have to be imagined, had probably painted and gilded timbers, forming an important element in the decorative scheme. The roofs were covered with tiles or bright colored terra-cotta.

Lytton's great novel, "The Last Days of Pompeii," will be found of interest to the student as a description of the habits and life of the Romans.

The Pompeian House at the Crystal Palace, designed by the late Sir Digby Wyatt, is an exceedingly good reproduction of an ordinary Pompeian house, the decorations being copies of original paintings at Pompeii.

Hadrian's Villa, near Tivoli, resembled a palace in its extent, occupying an area of about seven square miles. Besides the imperial apartments it was surrounded by terraces, peristyles, *palæstra*, theatres, a gymnasium, and *thermæ*. Restorations have been made by many authorities, as Piranesi, Canina, and others.

Examples of Roman villas exist in England (see page 280).

The *insula*, or tenement of many stories, seems to have resembled the modern flat.

FOUNTAINS.

Fountains, both public and private, have always been one of the most striking features of both ancient and modern Rome on account of their graceful designs, rich material, and the soothing effect in a hot and low-lying city of the clear water sparkling in the sun.

The public fountains were exceedingly numerous, amounting to many hundreds, either as large basins of water (*lacus*) or as spouting jets (*salientes*), or the two combined and ornamented with marble columns and statues.

Private fountains existed in great numbers, mainly in the courts and gardens of the houses, and exhibit much variety of design. They were of colored marbles and porphyries, often decorated with bronze statuettes. In some the water issued in jets from fishes, shells, or other objects, sometimes supported by a figure of a nymph. In others, wall niches lined with glass and mosaics were provided with lions' heads, from which issued the water, as have been found at Pompeii.

4. COMPARATIVE.

GREEK.

A. **Plans.**—Designs have refinement and beauty, proportion being of the first importance, and there is a dignity and grandeur of effect irrespective of the smallness of scale.

Unity was attained in the self-contained temples, while variety of grouping and some picturesqueness was attempted in the Propylæa and Erechtheion (Nos. 18, 26, 30).

Purity and severity of outline caused by the simple method of post and beam, did not lend itself to such variety and boldness of planning as resulted from the arcuated Roman style.

No mixture of constructive principles occurs in the buildings of the Greeks, the limits of whose style have not been yet successfully expanded.

ROMAN.

A. **Plans.**—Designs convey an impression of vastness and magnificence, and are characteristic of a powerful and energetic race. The Romans were pre-eminently great constructors, and knew how to use the materials at hand. This constructive skill was acquired by the building, on a large scale, of utilitarian works, such as the aqueducts and bridges.

The arch, vault, and dome were the keynotes to the whole system of the style, and constituted a step toward Gothic architecture. By the use of the arch, wide openings were rendered possible, and by vaults and domes large areas and complicated plans could be roofed (Nos. 58 and 59), giving boldness and variety and leading to the system of intersecting

GREEK.

The use of the true arch is avoided. An example of a vaulted building is the Treasury of Atreus, at Mycenæ, where the beds of the stones are horizontal throughout, each bed overlapping the one below till the crown is reached (page 54).

The Greek Temples were usually orientated, *i.e.*, faced the east.

B. Walls.—Constructed of large blocks of marble, without mortar, allowing of refinement of treatment, and perfection of finish in construction. Where coarse stone was used it was frequently covered with stucco. Jointing was not reckoned as a means of effect. Stability was achieved solely by the judicious observance of the laws of gravity, the adherence of the blocks not being necessary, for the weights only acted vertically, and needed but vertical resistance. Even for transmitting the pressure between the blocks only metal cramps were used. The employment of marble directly shaped the development of the style. One-sixteenth of an inch was rubbed off the buildings on completion, this polishing being performed by slaves.

The *Anta* (Nos. 21, 26, 27 I, 30, and 44 F) was employed at extremities and angles of cella walls.

C. Openings.—Of minor importance, the columnar treatment giving the necessary light and shade. Doorways are square-headed, and often crowned with a cornice supported by consoles, as in the fine example of the north doorway at the Erechtheion, Athens (No. 37 D—H).

Windows, except on rare occasions, as shown on plate No. 28, were not used in Temples, illumination being obtained from doorways or hypæthral openings (Nos. 20 C, 23 A, B, and 27 B, D).

ROMAN.

vaults, by which the concentration of weights on piers was effected. The use of recesses rectangular and semicircular on plan is a special Roman feature (Nos. 50 B, 54 B).

The Roman Temples were placed without regard to orientation.

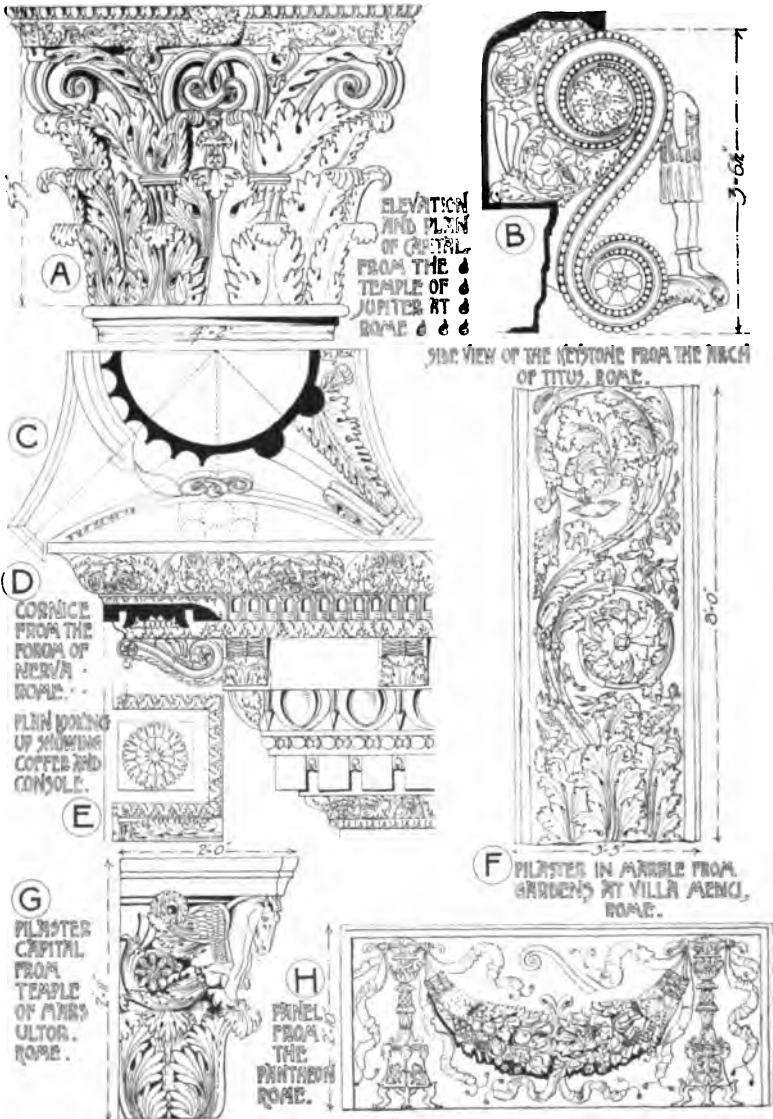
B. Walls.—Constructed of small, mean, and coarse materials, such as brick, rubble, and concrete, with brick or marble facing, bond courses for strength being introduced. Such walls are thus often coarse in character. By the extended use of concrete, it may be said that the Romans inaugurated the employment of large masses of irregular materials, reduced into fragments and bound together by mortar. These materials were not special to any country, but consisted of fragments of stone, brick or hard rock and quarry debris, all of which sufficed for the most important projects.

Great haste was necessary in the execution to complete sufficiently for use, and doubtless many buildings were never perfectly finished.

The *pilaster* was the Roman development of the Greek *Anta* (Nos. 38 F and 67 F).

C. Openings.—These were important features, being square-headed or circular, principally the latter (No. 62 A). The semicircle divided vertically by two mullion piers was a favourite type of window. Arches sometimes had centering, supported at the springing line, afterwards filled up with brickwork, thus producing the segmental arch, common in the third and fourth centuries A.D. (No. 46 E), from the Basilica of Constantine.

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D. Roofs.—Extreme care was bestowed upon the elaborately constructed, and highly-finished, roofs of the temples. These were of timber framing (Nos. 23 and 25), and were covered with large slabs of marble with cover-pieces which at the eaves were finished with richly carved *antefixæ* (Nos. 16, 19 C and 20 H, J). The *acroteria* or blocks of stone resting on the vertex and lower extremities of the pediment, and supporting statuary or ornaments were characteristic features (Nos. 16 A, 20). The ceilings of the peristyles were coffered in stone with square or rectangular panels (No. 21), having carved enrichments, the richest examples being at the Parthenon (No. 23) and the Temple of Apollo Epicurius (No. 27). Coffered ceilings in framed timber probably roofed over the large span of the cella.

E. Columns.—The orders were *structural* necessities wherever used. The column and beam are the keynotes of Greek architecture, the fluting being carried out when the columns were in position.

Orders never superimposed except to interiors of Temples (Nos. 20, 23, 28 B and 31 D). The only Greek use of pedestals appears to be that of the Temple of Diana at Ephesus (No. 31).

The *Tuscan Order*, which is merely a simplified form of the Doric, was not employed by the Greeks.

The *Doric Order* (No. 38 A) was largely used by the Greeks, their most important buildings being

ROMAN.

D. Roofs.—The noble vaults and domes described on page 117 constituted the important development, and in many cases were richly coffered, as at the Pantheon (Nos. 54, 55). Timber framing also appears to have been employed, and according to Horace, splendid wooden coffered ceilings were employed in the houses of the rich. Roof coverings were either of terracotta, as amongst the Etruscans, or of bronze in the more important buildings, as for example the Pantheon. According to Vitruvius flat terrace roofs were employed, which it is believed were constructed of T-iron and concrete, as in some of the larger halls of the *Thermæ*.

The ceilings internally were of various geometric patterns, such as octagons and squares in combination, as at Baalbec.

E. Columns.—The orders were used in connection with the arch, and gradually lost their structural importance, being used in a *decorative* manner, as in the Colosseum at Rome, or in the Triumphal Arches.

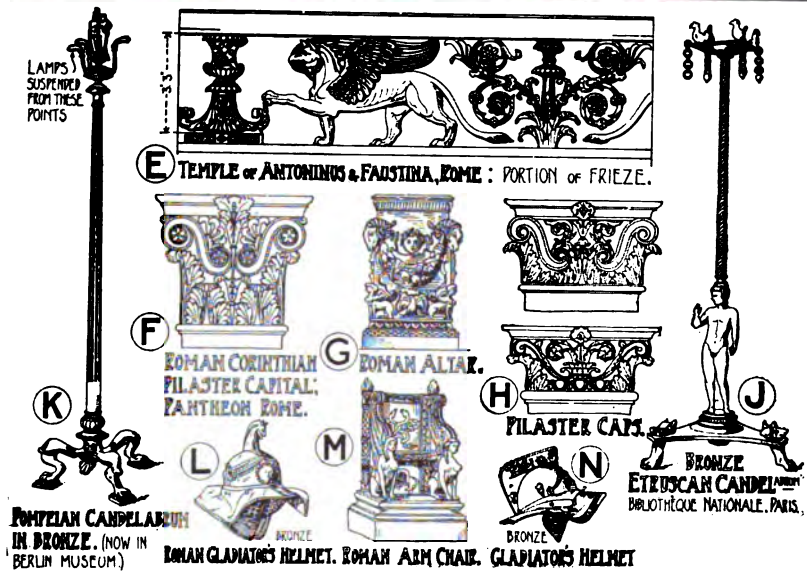
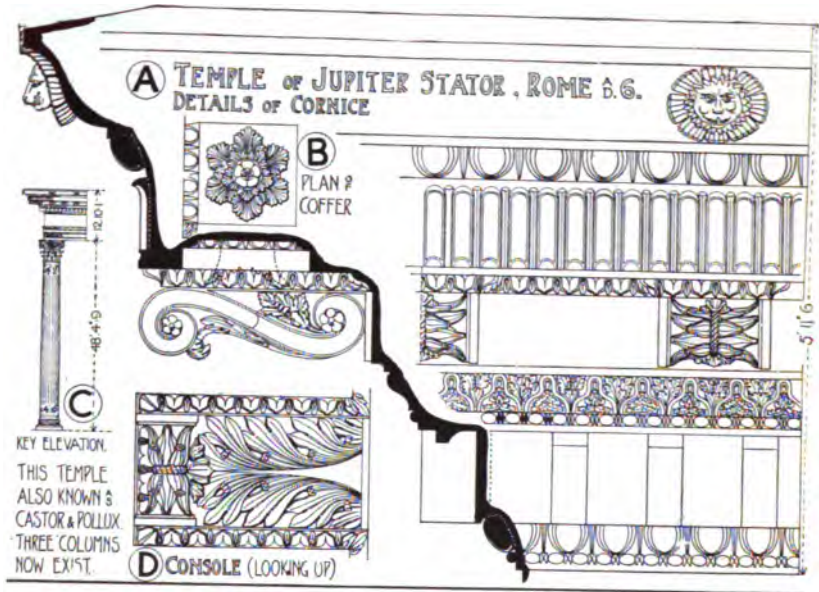
Orders often superimposed, as at the Colosseum (No. 62 A). The Romans introduced pedestals on which they placed the column to secure greater height.

A canon of proportions, reduced to rules by Vitruvius, was gradually evolved for all the orders.

The *Tuscan Order* has a plain unfluted column and simple entablature (No. 262 B). S. Paul, Covent Garden, is a good modern example by Inigo Jones.

The *Doric Order* (No. 38 B), was little used by the Romans, not being suited to their ideas of

ROMAN ORNAMENT. II.



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erected of this order. It was used without a base, the capital having a plain square abacus, beneath which is the echinus (No. 40 D), whose outline varies in different examples. The proportions of the columns proceed from extreme sturdiness in the early examples to great refinement in the late ones, and the shaft is usually fluted. The architrave overhangs the face of the column (Nos. 16 and 38 A), and the triglyphs are over the central axes of the columns, except at the angles, where the end triglyph appears at the extremity of the frieze (No. 16 A).

The channels in the triglyph are rounded off at the top.

The mutules, placed over triglyph and metope are much inclined.

The *Ionic Order* (No. 38 C) was used with great refinement by the Greeks. The distinctive capital has the scrolls showing on two sides only, although an example of angle volutes is found in a special case at Bassæ (Nos. 27 and 29).

The *Corinthian Order* (No. 38 E) was little used by the Greeks, and the examples remaining are thought by some to indicate the decline of Greek art, in that sculpture, as such, gave way to mere carving.

The order was practically not introduced till the later age, although the earliest known example, viz., that in the cella of the Temple of Apollo Epicurius at Bassæ, dates from B.C. 430. It appears to have been principally used in small buildings only, such as the choragic Monument of Lysicrates (No. 38 E), and the octagonal Tower of the Winds at Athens, or internally in buildings of greater size. The Temple of

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splendour and magnificence. The Temple of Hercules at Cora is the only temple in the style, but engaged columns occur in the Theatre of Marcellus. The Romans added a base, varied the abacus and echinus, and modified the cornice, adding a dentil course. The columns were less sturdy and the flutes were sometimes omitted. The architrave does not overhang the face of the column, but is in a line vertical with it (No. 38 B). In this order as approved by Palladio and others the triglyphs in the frieze were over the central axes of the columns, even at the angle.

The channels in the triglyph have square angles at the top.

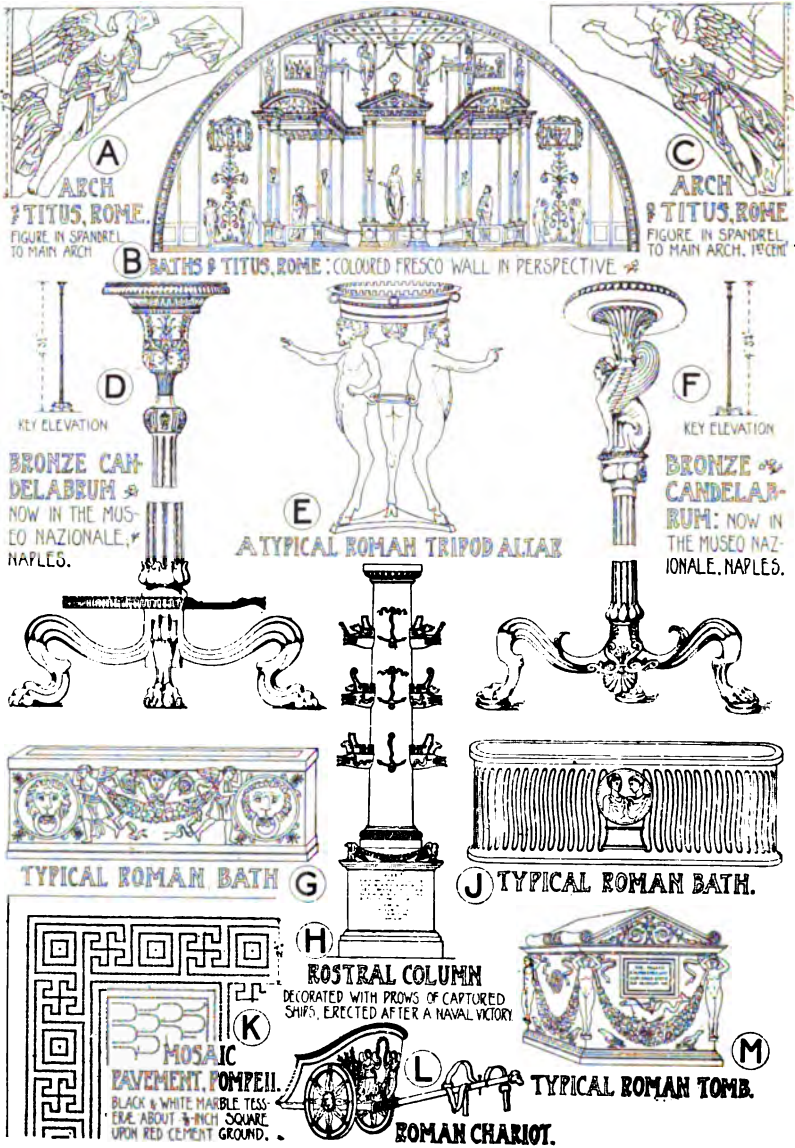
The mutules, usually placed over the triglyph only, are but slightly inclined.

The *Ionic Order* (No. 38 D) differed from the Greek chiefly as regards the typical capital, which usually had angle volutes, thus showing the face of the scrolls on each side.

The entablature is of a richer description.

The *Corinthian Order* (No. 38 F) was the favourite of the Romans, and was used in the largest temples, as those of Castor and Pollux (Nos. 67 A, 68) and Vespasian at Rome. The capital is rich, the acanthus leaves surrounding the "bell" often being naturalistic in character and derived from the leaves known as the "acanthus mollis," which are blunt-ended and flat in section, or from the olive leaf, as in the Temple of Castor and Pollux. The entablature is very much enriched by ornamentation, probably derived from the painted work of the Greeks. The architrave has numerous and enriched mouldings, and the frieze is frequently carved with the acanthus

ROMAN ORNAMENT. III.



GREEK.

Jupiter Olympius at Athens may be considered a Roman building, or rather as a Greek design mainly carried out by Romans. (See page 90.) The Acanthus leaves surrounding the "bell" were of the prickly acanthus (*acanthus spinosus*) type (No. 33 F, H), having pointed leaves of V-shaped section.

Shafts of columns were fluted.

The *Composite Order* was never used by the Greeks, but a treatment somewhat similar is seen in the capitals of the Erechtheion where the necking under the Ionic scrolls are carved with the Anthemion ornament (Nos. 29 E and 41).

F. Mouldings (Nos. 39 and 40).—The Greeks relied for effect on the graceful contour of their mouldings, which approach conic sections in profile, and which, though often covered with delicately carved enrichments, never lose the idea of grace of outline which the decoration seems but to enhance. Executed in a fine-grained marble, they were often undercut so as to produce a fretted effect.

Greek dentils are far apart, and occupy the whole depth of the moulding.

Greek consoles used only as vertical brackets to doorways as in the Erechtheion doorway (No. 37).

G. Ornament (Nos. 41, 42, 43 and 44).—The sculpture of the Greeks has never been surpassed, whether executed in isolated groups or in works within the boundaries of an architectural framing, as at the Parthenon. The ornamental sculpture used in the tympana of the pediments, the metopes and the friezes, and the carefully prepared cement used as a covering to stone or

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scroll or with figure ornaments. The cornice is also considerably enriched, modillions (consoles, brackets or corbels) being introduced and giving an apparent support to the corona, and have between them sunk and sculptured coffers. The mouldings under the corona are much enriched with carving, as is even the corona itself.

Shafts were fluted or plain.

The *Composite Order* was invented by the Romans, being used principally in the Triumphal Arches. The upper portion of the Ionic capital was combined with the lower part of the Corinthian. In other details the order follows the Corinthian, but with additional ornamentation.

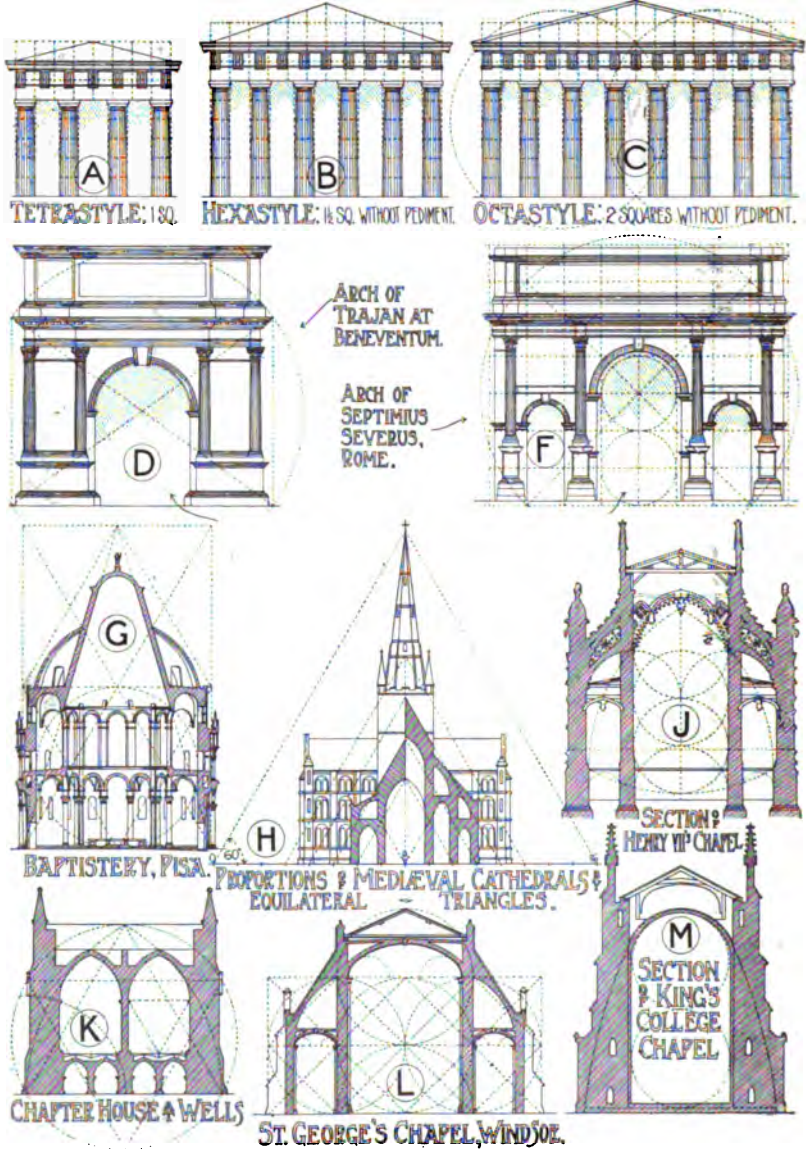
F. Mouldings (Nos. 39 and 40).—The Romans relied on the rich carving cut upon their mouldings, which are usually parts of circles in profile. Ostentation replaces refinement, and in the latest examples, every member being carved, a certain rich picturesqueness of surface is produced in cornices and dressings, although the execution of the carving to the mouldings themselves is often of inferior workmanship.

Roman dentils are close together, of less depth, and have a fillet underneath.

Roman consoles used horizontally in cornices (No. 68) and vertically in keystones to arches (No. 67).

G. Ornament (Nos. 67, 68 and 69).—The Romans did not excel either in sculpture or painting, but Greek artists were employed, and Greek examples were prized and copied. In later times both vaults and floors of importance were executed in mosaic, but many examples show great vulgarity of sentiment. In the case of marble, for wall facings and floors, rich and good effects were

PRINCIPLES OF PROPORTION.



GREEK.

brick, have already been referred to in the analysis of Greek architecture (page 108). It is generally admitted that the exteriors of the Temples were treated with color, which must have aided in the general effect. Polygnotus and other great artists were employed for decorative painting upon the temples and other buildings, part of the Propylæa being known as the Painted Loggia. The early frescoes were probably in the style of the vase painters of that period, while the later, if judged from the provincial imitations of Pompeii, must have been grand in style and decorative in effect.

The *Anthemion*, or honeysuckle (Nos. 39 J, 42 H, 43 F, 44 A, E, F, N), was the characteristic *motif* of much Greek surface ornament, and was also employed on cyma-recta mouldings.

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produced, as the Romans were connoisseurs in marbles, which they sought out and imported from all countries. The ox-heads connected with garlands, so frequently carved on Roman friezes, are supposed to have originated from the actual skulls and garlands hung for decoration on altars at which the beasts themselves had been slain.

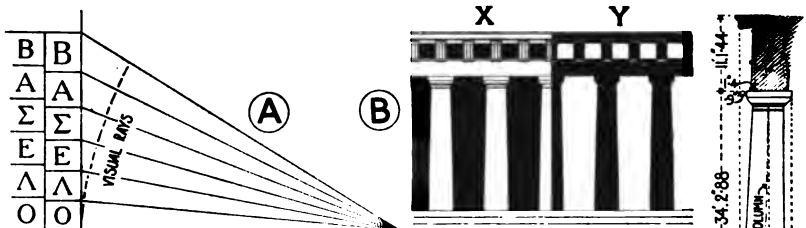
A finely worked marble cement was frequently used as a covering to walls and stone columns, and formed a ground on which paintings could be safely executed, as at Pompeii. The arabesques which adorned the walls of the Baths of Titus (No. 69 A), influenced largely the fresco decoration of the Renaissance period.

The *Acanthus* scroll with continuous stem and spirals adorned with rosettes or grotesques, is specially characteristic (No. 67 F).

5. REFERENCE BOOKS.

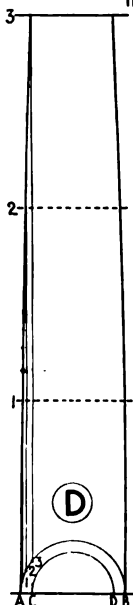
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OPTICAL CORRECTIONS IN ARCHITECTURE



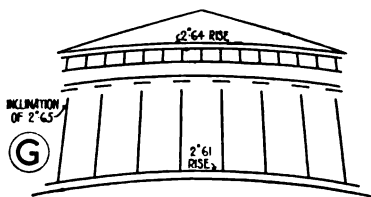
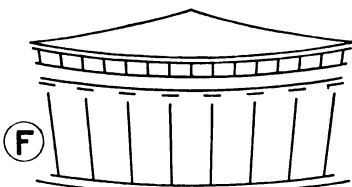
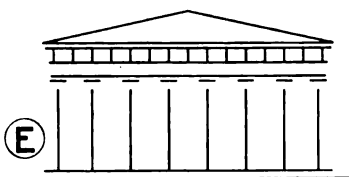
CORRECTION OF APPARENT PROPORTIONS.
FROM AN INSCRIPTION ON THE FACES OF THE ANTE OF A TEMPLE AT PRIENE.

EFFECT OF COLOR ON PROPORTIONS
IN X THE METOPES & CELLA WALL BEING BLACK THE COLUMNS APPEAR THINNER & THE ARCHITRAVE, TRIGLYPHS & CORNICE HAVE IMPORTANCE. IN Y WITH REVERSED COLORING THE COLUMNS APPEAR THICKER & HIGHER AND THE ENTABLATURE LOSTS IN IMPORTANCE.



METHOD OF DRAWING ENTASIS OF COLUMN:
AB & CD ARE BOTTOM & TOP DIAMETERS RESPECTIVELY DESCRIBE SEMICIRCLES ON THESE & AT C ERECT PERPENDICULAR CUTTING LARGER ONE IN X. DIVIDE DESCENT AX & HEIGHT OF COLUMN INTO ANY NUMBER OF EQUAL PARTS 1, 2, 3 ... & NUMBER BOTH 1, 2, 3 FROM A. THRO' THE POINTS 1, 2, 3 IN DESCENT ERECT PERPENDICULARS CUTTING CORRESPONDING DIVISIONS OF THE HEIGHT THROUGH THE PLOTS THIS OBTAINED DRAW CURVE...

THE PARTHENON ATHENS THE EAST FRONT

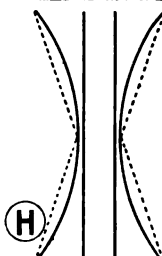


E THE TEMPLE FRONT AS IT APPEARS IN EXECUTION WITH CURVED HORIZONTAL LINES AND INCLINED VERTICAL FEATURES AS AT G.

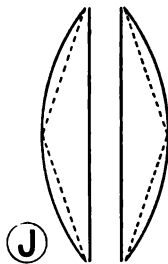
F THE TEMPLE FRONT AS IT WOULD APPEAR IF BUILT AS AT E WITHOUT OPTICAL CORRECTIONS.

G THE TEMPLE FRONT ARRANGED WITH THE VERTICAL AXES INCLINING AND WITH CONVEX STYLOBATE, ARCHITRAVE, ENTABLATURE AND PEDIMENT, PRODUCING RESULT AS AT E.

C THE PARTHENON INCLINATION OF COLUMNS, FRIEZE AND ARCHITRAVE.



PADALLEL STRAIGHT LINES HAVING CONVEX CURVES ON EITHER SIDE, APPEAR WIDER APART IN THE CENTRE.



PADALLEL STRAIGHT LINES HAVING CONCAVE CURVES ON EITHER SIDE, APPEAR CLOSER TOGETHER IN THE CENTRE. A SIMILAR EFFECT PRODUCED BY INCLINED LINES AS INDICATED IN H & J BY DOTTED LINES.

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The student should visit the Crystal Palace for the Pompeian House and models of the Roman Forum, the Colosseum, Pantheon and other buildings. The British and the Victoria and Albert Museums should be visited for actual fragments.

EARLY CHRISTIAN ARCHITECTURE.

"A fuller light illumined all,
A breeze through all the garden swept."—TENNYSON.

I. INFLUENCES.

i. **Geographical.**—The position of Rome as the centre of a world-wide empire was an important factor (see page 111), "All roads lead to Rome," and Christianity, to become universal, had to grow up at the capital, however eastern its birthplace. Ravenna, subdued by Justinian in A.D. 537, was the connecting link of the early Christian and Byzantine styles (see page 193).

ii. **Geological.**—The quarry of the ruins of Roman buildings influenced the architectural treatment of the style, both in regard to construction and decoration, as columns and other architectural features and marbles from the older buildings were worked into the design of the new basilican churches of the Christians.

iii. **Climate.**—See Roman Architecture (page 112).

iv. **Religion.**—History presents no phenomenon so striking as the rise of Christianity, which spread so rapidly that in a very short period it was diffused throughout the whole civilized world. In A.D. 313 Constantine issued his celebrated decree from Milan, according to Christianity equal rights with all other religions, and in A.D. 323 he himself professed Christianity, which then became the established religion of the Roman Empire. The Christians, who up to that period were an unpopular dissenting sect, and had worshipped in the Catacombs, which formed their burial-places, were now able to hold their services openly and freely.

The Council of Nice, A.D. 325, called by Constantine, was the first of several Councils of the Church for the settlement of disputes about heresies.

A temporary reaction took place in A.D. 360–363, under Julian, known as the "Apostate."

Gregory the Great (590-604), when besieged by the Lombards at Rome, employed the imperial army of Constantinople and acted as the defender of Rome, making common cause with the people against the Lombards and others.

v. Social and Political.—On changing the capital of the empire from Rome to Byzantium in A.D. 324 Constantine practically reigned as an absolute monarch till his death in A.D. 337, the old Roman political system coming to an end.

The division of the Roman Empire first took place in A.D. 364, Valentinian being Emperor of the West and his brother Valens of the East.

Theodosius the Great, reigning between the years A.D. 379-395, reunited the Eastern and Western portions of the Empire.

The series of emperors in the West came to an end in A.D. 476, and the empire was nominally again reunited, Zeno reigning at Constantinople over the Eastern and Western Empires.

Theodoric the Goth reigned in Italy, A.D. 493-526, a period of peace and prosperity, in which Byzantine art influenced Early Christian art by way of Ravenna, which, from 493-552, was the capital of the Gothic dynasty.

Kings of separate states were then elected in Italy, Spain, Gaul, and Northern Africa, Odoacer, the new king of Italy, recognizing the supremacy of the one Roman Emperor at Constantinople. The emancipation of the West from direct imperial control made possible the development of Romano-German civilization, which facilitated the growth of new states and nationalities, gave a fresh impulse to the Christian Church and laid the foundations of the power of the Bishops of Rome.

From the Roman or common speech several of the chief languages of modern Europe commenced to arise, and in consequence are called *Romance* languages.

vi. Historical.—The Early Christian period is generally taken as lasting from Constantine to Gregory the Great, or from A.D. 300 to 604. The Teutonic invasions of Italy commenced about A.D. 376, and Teutonic settlements took place within the empire about this time, these movements being caused by the incursions of the Huns into Germany.

The West Goths sacked Rome under Alaric in A.D. 410. The defeat of Attila, king of the Huns, at the battle of Châlons, A.D. 451, aided in consolidating Christianity in Europe.

During the reign of Gregory the Great (A.D. 590 to 604) the Latin language and Early Christian architecture, the latest phase of Roman art, ceased to exist, and for the next two centuries architecture was practically at a standstill in Europe, when the old Roman traditions were to a great extent thrown aside, and Romanesque architecture was gradually evolved.

2. ARCHITECTURAL CHARACTER.

One style was evolved from another so gradually that it is impossible to say exactly where the one ended and the next began. This gradual growth characterizes progress in other departments as well as Architecture. Each age feels its way towards the expression of its own ideals, modifying the art of the past to meet fresh conditions.

Little money being at the command of the Early Christians, it was necessary for them to adopt places of worship which could be readily constructed. Many of the Roman Temples, which were now rendered useless for their original purpose, were utilized for the new faith, and in addition new churches built on the model of the old Roman basilicas, and formed of columns and other features from Pagan buildings, were erected.

These are known as basilican churches, and were often situated over the entrances to their former hiding-places or crypts, and were constructed with columns of different orders and sizes which were made to an uniform height by the addition of new pieces of stone, or double bases, or in some cases by the omission of the base mouldings (No. 77).

On this account, although extremely interesting from an archaeological point of view, the early buildings can hardly have the value for study, in the architect's mind at least, which a new manner in architecture, arising from new structural necessities, is certain to possess.

The earlier basilican churches had their columns closely spaced, and were crowned with the entablature which supported the main wall, on which rested the wooden roof (No. 75 B), but as the arch came more into general use these columns were spaced further apart, being connected by semicircular arches (Nos. 72, 73 A and 74).

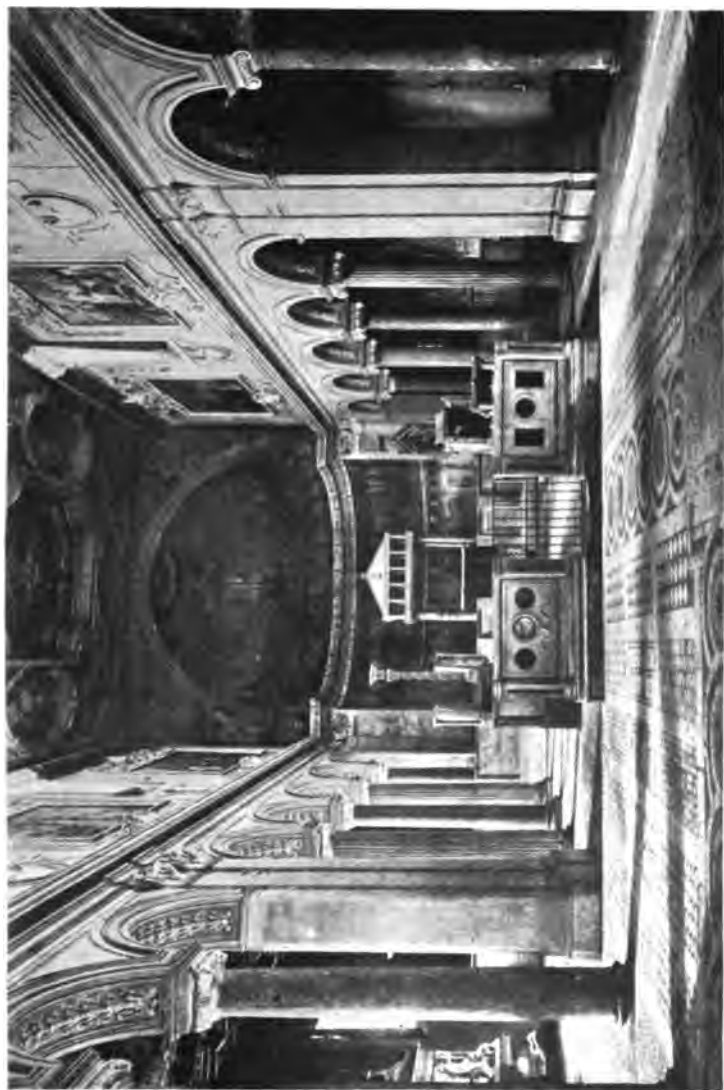
The basilican church with three or five aisles, covered by a wooden roof, is the special type of the style as opposed to the vaulted types of the Byzantine style (Nos. 80, 81, 84 and 85), in which a circular dome was placed over a square space by means of the pendentive (No. 79).

The architectural character is impressive and dignified; due to the increase in the apparent size of the basilicas by the long perspective of the columns, and the comparative lowness of the interiors in proportion to their length.

3. EXAMPLES.

BASILICAN CHURCHES.

The plans of the basilicas, or Roman halls of justice, were copied by the early Christians for their places of worship, and



72. THE BASILICAN CHURCH OF S. CLEMENTE, ROME.
Showing projecting Choir and apsidal treatment.

thus became stepping-stones from the Classic of pre-Christian times to the Gothic architecture of the Middle Ages, which may be said to commence with these Basilican churches.

Some authorities, however, believe the early Christian churches to have been evolved from the Roman dwelling-house, where at first the community were in the habit of assembling, or from the class-room where philosophers taught.

How suitable the Roman basilica type (No. 58) was for Christian worship is seen from the plan of **S. Clemente, Rome**, A.D. 1084 (Nos. 72, 73 B), which, although rebuilt in the eleventh century, contains the original internal arrangement of the churches of the fifth century.

An *atrium* or forecourt, being an open space surrounded by arcades, formed an imposing approach in most of the Basilican churches. The covered portion next the church called the *narthex* was the place for penitents. In the centre of the atrium was a fountain or well, the water from which was used for washing before entering the church—a custom which still survives in an altered form amongst Catholics, who dip their fingers into a stoop, or holy-water basin, at the entrances of their churches.

The *nave*, lighted by a clerestory of small windows, had an aisle on either side, such aisles being usually half the width of the nave. Occasionally two aisles occur on each side of the nave, as in the Basilicas of S. Peter (No. 75 c), S. Paul (No. 75 E) and S. John Lateran.

Galleries for the use of women were sometimes placed over the aisles, as at S. Agnese and S. Lorenzo; but where none existed the sexes sat apart on opposite sides of the nave.

A *transept*, called the “*bema*,” or “*presbytery*,” which existed in a modified form in the pagan basilicas, was occasionally introduced, converting the plan into a Latin cross, of which the nave was the long arm. Some consider, however, that this cruciform ground plan was derived from the buildings erected for sepulchral purposes as early as the age of Constantine.

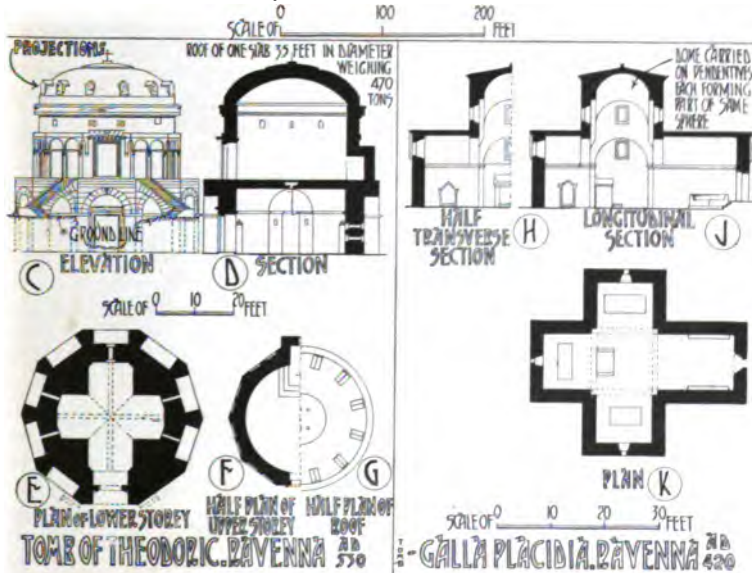
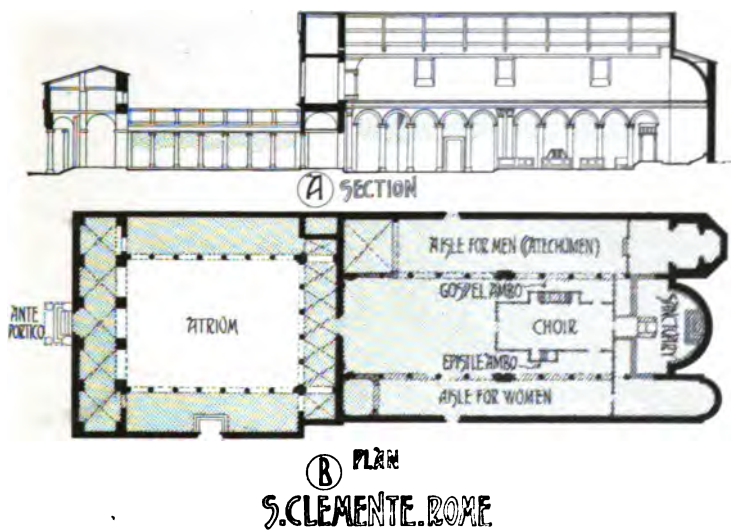
A *choir* became necessary, owing to the increase of ritual, and was inclosed by low screen walls, or “*cancelli*” (from which the word chancel is derived), and provided with an “*ambo*” or pulpit on either side, from which the gospel and Epistle were read (No. 72).

The *bishop* took the place formerly occupied by the “*prator*,” or “*questor*” (page 136), until in subsequent ages the seat was moved to the side, becoming the bishop’s throne.

The *presbyters*, or members of the council of the early Church, occupied seats on either side of the bishop formerly occupied by the *assessors*. The apse became the sanctuary which remained circular-ended in Northern Europe.

The *altar* in front of the apse, formerly used by the Romans

EARLY CHRISTIAN EXAMPLES. I.



for the pouring out of libations, or sacrifices to their gods, was now used for the celebration of Christian rites, and a *baldachino*, or canopy, supported on marble columns, was erected over it. In later times the altar was frequently placed against the east wall of the apse (No. 72).

The interiors of these buildings owe their rich effect to the use of glass mosaic ("opus Grecanicum,") which was placed frequently in a broad band (No. 74) above the nave arcading and to the semi-dome of the apse (No. 78 G, K), which is frequently richly treated with a central figure of Christ seated in glory and set in relief against a golden background.

"Below was all mosaic choicely planned,
With cycles of the human tale."

The ceilings of timber were also formed in compartments and were richly gilded (Nos. 74 and 76).

The pavements were formed out of the abundant store of old columns and other marbles existing in Rome, slices of columns being used as centres surrounded by bands of geometric inlay twisted with intricate designs (No. 78 B, L).

The old **Basilican Church of S. Peter** (A.D. 330) was erected near the site of the martyrdom of S. Peter in the circus of Nero. It had a "transept," or "bema," 55 feet wide, and 113 feet high (No. 75 A, B, C). Five arches, the centre called the arch of triumph, gave access from the body of the church, and at the sanctuary end was a semicircular apse on a raised floor, against the centre of the wall of which was the Pope's seat. The priest stood behind the altar, and thus faced east, as the chancel was at the west end of the church.

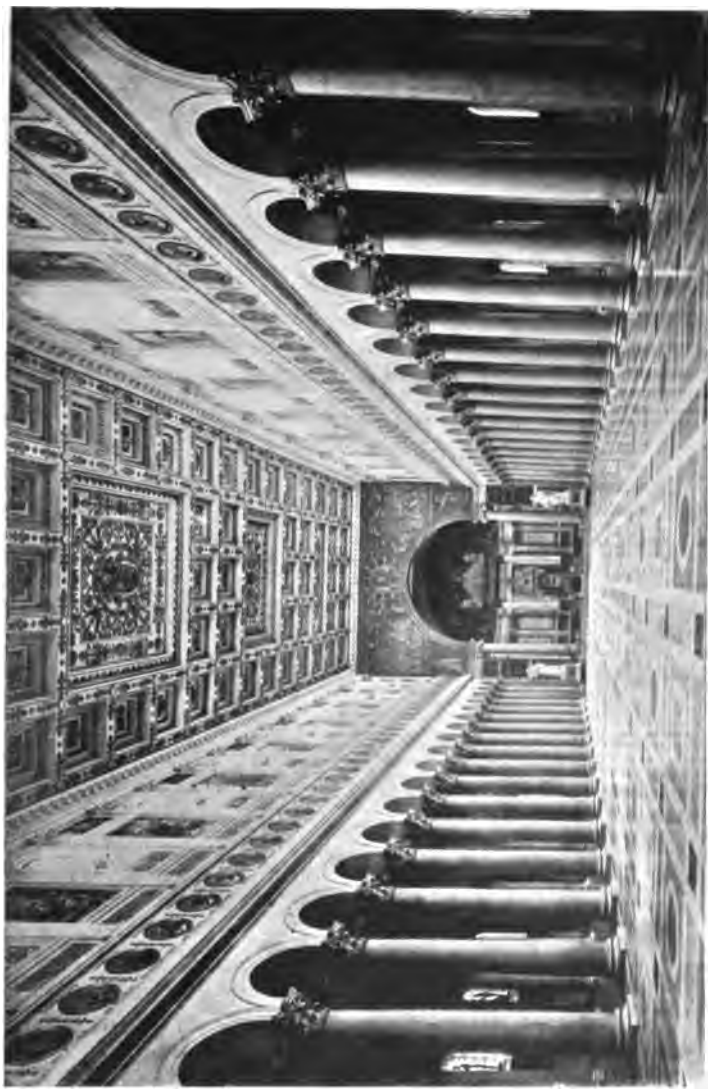
S. John Lateran (A.D. 330) has been altered so much in modern times as to have lost its early character.

There were in all thirty-one Basilican churches in Rome, mostly made up of fragments of earlier pagan buildings. The interiors of these basilicas are impressive and severe, the repetition of the long rows of columns being grand in the extreme, as in the interior view of **S. Paolo fuori le mura** (Nos. 74, 75 E), built A.D. 380 by Theodosius but re-erected in A.D. 1821, and **S. Maria Maggiore** (Nos. 75 D and 76).

There are also important examples at **Ravenna**, a city well situated for receiving the influence of Constantinople, and at one time the seat of an Exarch of the Empire. **S. Apollinare Nuovo**, A.D. 493-525, built by Theodoric the Goth, and **S. Apollinare in Classe**, A.D. 538-549, are important three-aisled Basilican churches carried out by Byzantine artists on Roman models, and they are interesting for the impost blocks to the capitals supporting the pier arches, and the fine mosaics.

At **Torcello**, near Venice, the foundations of the original

EARLY CHRISTIAN ARCHITECTURE.



74. BASILICAN CHURCH OF S. PAUL, BEYOND THE WALLS, ROME.

bishop's throne, surrounded by six rows of seats in the apse, still exist, giving a good idea of the Early Christian arrangements.

BAPTISTERIES

are another description of building met with in Early Christian architecture. They were originally used only for the sacrament of baptism; hence the name "Baptistry." The form was derived from the Roman circular temples and tombs, already described (page 136). There was generally one baptistry in each city, as at Ravenna and Florence, and it was as a rule a detached building, usually adjoining the atrium or fore-court. Indeed, until the end of the sixth century of our era the baptistry appears to have been a distinct building; but after this period the font came to be placed in the vestibule of the church.

In adopting the Roman tombs as models for these buildings, the early Christians modified them to some extent, for the internal columns which in Roman examples were generally used in a decorative way were now used to support the walls carrying the domes. To cover a large area with one roof was difficult, but by the addition of an aisle in one story round a moderate-sized circular tomb, the inner walls could be replaced by columns in the lower half, resulting in such a building as these early baptisteries (No. 75 H, J).

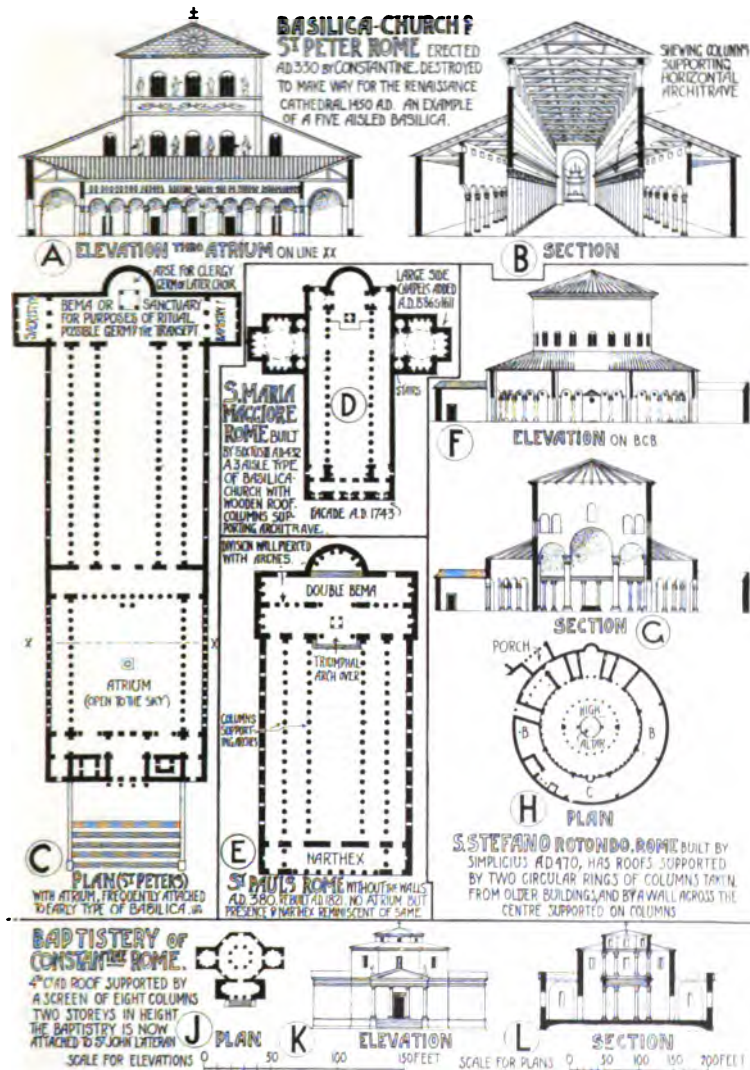
The Baptistry of Constantine, Rome (No. 75 J, K, L) is octagonal, and the roof is supported by a screen of eight columns two stories in height.

The Baptistry, Nocera, between Naples and Salerno, is circular, being 80 feet in diameter, with two rings of columns. This building is domed and covered with a wooden roof, and appears to be the first instance of the use of both, as the Roman architects always allowed the stone vault to show externally, as in the Pantheon. In the case of this building, however, the vault is merely an internal ceiling which is covered with an external wooden roof, and is similar to the practice of Gothic architects, who, in the mediæval period, covered the stone vaults of their churches with timber roofs (No 109).

S. Stefano Rotondo, Rome (A.D. 470), though not a baptistry, is a good example of a circular plan of similar type (Nos. 75 F, G, H, and 77), being 210 feet in diameter, and with roof supported on two circular rings of columns, all taken from older buildings, the outer range supporting arches, and the inner a horizontal architrave. The two central columns are an addition to support the roof timbers.

The Baptistry, Ravenna, founded at the end of the fourth century, is an octagonal structure with two arcades in the interior one above the other. The dome, constructed of hollow tiles, has

EARLY CHRISTIAN EXAMPLES. II





fine mosaics representing the Baptism of Christ, and altars with the open books of the Apostles. It resembles the Temple at Spalato (p. 130), but with arcades instead of horizontal architraves.

TOMBS.

S. Constanza, Rome (A.D. 330) was erected by Constantine as a tomb for his daughter, but was converted into a church in 1256. It has a dome, 35 feet in diameter, supported on twelve pairs of coupled granite columns.

The **Tomb of Galla Placidia, Ravenna** (A.D. 420) (No. 73 H, J, K), is exceptional, as it is cruciform in plan, instead of the usual circular form. It is 35 feet by 30 feet internally, and has a raised lantern at the crossing, pierced with four windows. It is domed by a portion of a sphere, and is one of the few examples in which the pendentives and dome are portions of one hemisphere (No. 79 H). Each of the arms of the cross contains a sarcophagus, and the interior is remarkable, as it retains all its ancient polychromatic decoration in mosaics.

The **Tomb of Theodoric, Ravenna** (A.D. 530) (No. 73 C, D, E, F, G) is two stories in height, the lower story being a decagon, 45 feet in diameter externally, and containing a cruciform crypt. Traces remain of an external arcade round the upper portion, standing on the decagonal basement. The roof consists of one slab of stone, hollowed out in the form of a flat dome, 35 feet in diameter, and round the edge of this block are stone handles, originally used to place this immense covering in position. The ashes of the founder were placed in an urn on the top of the covering.

Syria has a number of interesting monuments erected between the third and eighth centuries, notably those by Constantine—the *Church of the Nativity, Bethlehem*, the *Church of the Ascension, Jerusalem*, and the octagonal *Church of the Holy Sepulchre* on the site of the Temple of Solomon, also at Jerusalem.

The Syrian type appears soon to have broken away from Roman influence, due largely to the abundance of hard stone, the absence of brick, and the distance from Rome. Piers were used instead of columns, and roofs formed of stone slabs were usual. A favourite plan was a circle placed in a square, the angles being filled with niches, as in the *Churches at Bozrah* and *Ezra*. Such are considered to be prototypes of later Byzantine churches of the type of S. Sergius, Constantinople (No. 79 E, F, G), and S. Vitale, Ravenna (No. 83 C, D). *Salonica* possesses important examples, notably the domical Church of S. George. In *Asia Minor*, as at Ancyra, Pergamus, and Hierapolis, and in *Egypt* and *Algiers* are many examples of basilican and circular buildings of the Early Christian period.

EARLY CHRISTIAN ARCHITECTURE.



S. STEFANO ROTONDO, ROME.

4. COMPARATIVE.

A. Plan.—The early Christians adopted the Basilican model for their churches (Nos. 73 and 75), but in addition the halls, baths, dwelling-houses, and even the pagan temples were used for places of worship.

An isolated circular church, used as a baptistery,¹ was generally attached to the chief Basilica or cathedral.

B. Walls.—These were still constructed according to the Roman methods, rubble or concrete walling being used, faced with plaster, brick, or stone. Mosaic was used internally, and sometimes externally on the west façades for decorative purposes.

C. Openings.—Doors, windows, and niches were generally spanned by a semicircular arch, the use of the lintel being dispensed with. The window openings were small (No. 78 D, F); those to the nave being in the clerestory high in the nave wall above the aisle roof, a feature which was developed in Gothic architecture (Nos. 73 A, 75 B, G).

D. Roofs.—Wooden roofs (No. 75 B), covered the central nave, simple forms of construction such as King and Queen post trusses being employed. These roofs were ceiled in some ornamental manner (No. 74), the decoration of a visible framework being of a later date, as at S. Miniato, Florence (No. 93). The side aisles in the churches were occasionally vaulted, and the apse was usually domed and lined with mosaic (Nos. 72 and 78 G, K).

E. Columns (Nos. 72, 77 and 78).—They are often of different design and size, being mostly from earlier Roman buildings which had fallen into ruins or were purposely destroyed. It was natural that the early Christian builders, not being good craftsmen themselves, should use in their buildings the materials and ornaments which had been left by the pagan Roman. A rich and grandiose effect was often obtained at the expense of fitness in the details of the design. Middleton states that all the fine marble columns

¹ In later Romanesque and Gothic periods, these early baptisteries, themselves founded on the Roman circular temples and tombs, were treated as follows in the different European countries :—

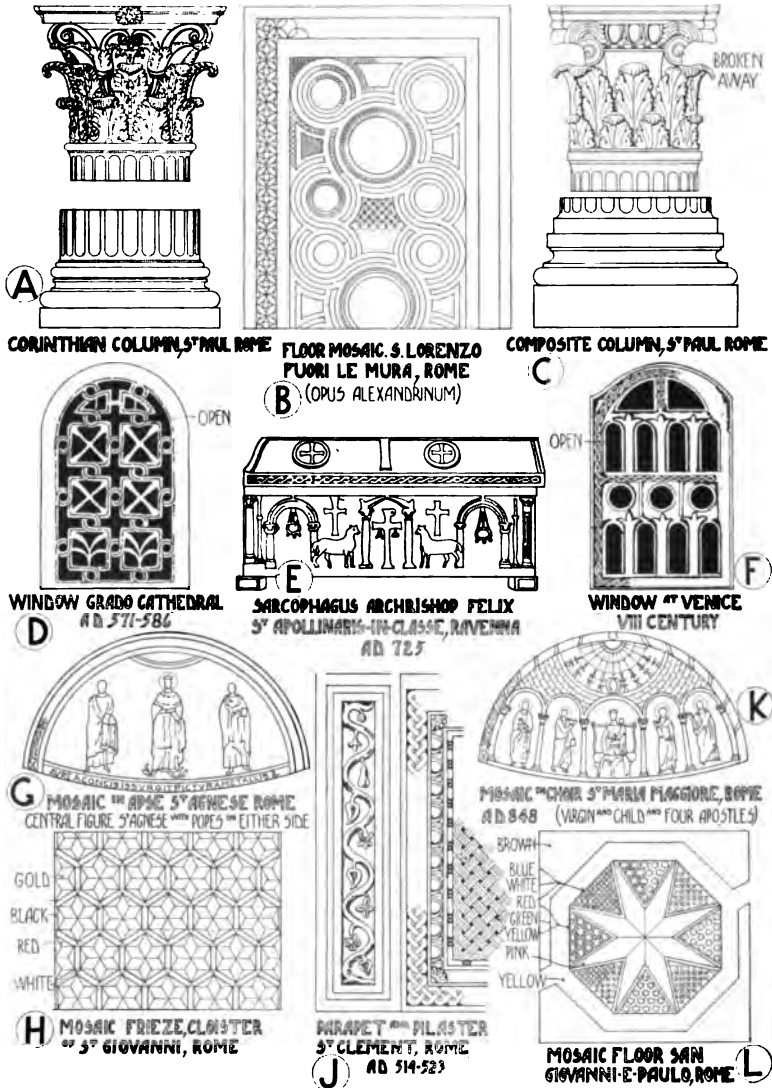
In **Italy**, where the churches were not derived from a combination of a circular eastern church with a western rectangular nave, as in France, but were direct copies of the Roman basilica, the baptistery always stands alone.

In **France**, circular churches were built to stand alone, and when it was necessary to enlarge them, the circular building was retained as the sanctuary or choir, and a straight lined nave was added for the use of the people. Thus from the circular church originated the apsidal choir of the Gothic period.

In **Germany**, the earlier baptistery was joined to the square church and formed a western apse. The Germans also built circular churches, and then added choirs for the priests, that they might pray apart from the people (No. 83 E).

In **England**, the Gothic builders generally preferred a square east end, except where French influence made itself felt, as at Westminster. Circular churches were erected, as the Temple Church, London, but they were few in number, and due to the Knights Templars (page 219), being built as copies of the Rotonda of the Holy Sepulchre at Jerusalem.

EARLY CHRISTIAN ORNAMENT.



in the churches of Rome have been taken from ancient Roman buildings, except those in S. Paolo fuori le mura.

F. Mouldings.—These are coarse variations of Roman types, and the carving is of the rudest kind, though rich in general effect. The technique of the craftsman gradually declined, and was at a low ebb during this period.

Enrichments incised upon mouldings were in low relief, and the acanthus ornamentation, although still copied from the antique, became more conventional in form.

G. Ornament.—The introduction of much color is a feature of the period, giving much richness to the interiors.

The domed apse (No. 72), as has been mentioned, was lined with mosaic, the subject generally being Christ surrounded by angels and saints.

The arch of triumph, separating the nave from the bema, was ornamented with appropriate subjects; long friezes of figures line the wall above the nave arcades (Nos. 72, 74 and 76), and the wall spaces between the clerestory windows often had mosaics representing subjects taken from Christian history or doctrine.

The figures are treated in strong colors on a gold background. The design is bold and simple, both in form and draperies, and an earnest and solemn expression, fitting well the position they occupy, characterizes the groups. The method of execution is coarse and large, and no attempt was made at neatness of joint or regularity of bedding. The interiors are, by the aid of these mosaics, rendered exceedingly impressive.

In addition to the richness of the wall surfaces formed of colored mosaics the pavements of colored marbles in geometric patterns added much to the rich effect of the interiors. These pavements were formed largely of slices from the old Roman porphyry columns, which were worked into designs by connecting bands of geometrical inlay on a field of white marble (Nos. 72, 78).

The glass mosaic used to decorate the ambones, screens, and episcopal chairs, as in the fittings of the church of S. Clemente at Rome (No. 78), was of a finer and more delicate description.

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BYZANTINE ARCHITECTURE.

"So fair a church as this had Venice none :
The walls were of discoloured Jasper stone
Wherein was Christos carved ; and overhead
A lively vine of green sea agate spread."—CHAUCER.

I. INFLUENCES.

i. **Geographical.**—Byzantium (renamed Constantinople by Constantine), occupies the finest site in Europe, standing on two promontories at the junction of the Bosphorus and the Sea of Marmora. It was called "New Rome" by the Turks of Asia, and, like the other Rome in Italy, it rests on seven hills. It occupies an important commercial site, standing at the intersection of the two great highways of commerce—the water high-road from the Black Sea into the Mediterranean, and the land high-road from Asia into Europe; a position which, from early times, gave it power and influence, especially over the corn trade carried on with the western merchants on the northern shores of the Euxine. The absence of tides and the depth of its harbour, an inlet known as the "Golden Horn," four miles in length, rendered its quays accessible to vessels of large burden.

ii. **Geological.**—Constantinople possessed no good building stone or even material for making good bricks, but, as far as possible the materials upon the spot had to be employed. Most of the marble used in the new capital was brought from different quarries round the Eastern Mediterranean, for Constantinople was a marble working centre from which sculptured marbles were exported to all parts of the Roman world.

Mr. Brindley, a writer on the subject, is of opinion that quite seventy-five per cent. of the colored marble used in Santa Sophia, and the other churches and mosques in Constantinople, is Thessalian green (Verde Antico), and that the architect was influenced by the kind of column likely to be at once obtainable. The quarries were situated in different parts of the empire, the monolith columns being worked by convicts in groups of sizes such as the quarry could produce.

iii. Climate.—Owing to Constantinople being hotter than Rome, and to its being further east, the Romans on settling there altered their method of building to suit the novel conditions due to climate and their contact with Oriental arts.

iv. Religion.—Constantine first made Christianity the state religion (page 176). The political division that came to pass between east and west was followed by a separation of churches also. This was due to the "Filioque controversy" as to whether the Spirit proceeded from the Father and Son or from the Father only; the Eastern church which still claims to be the orthodox church, maintaining the latter, and the western the former. The iconoclastic movement during the eighth and ninth centuries was in force and ended in the admission of painted figures in the decoration of churches, but all sculptured statues were excluded. These and other points of difference in ritual have vitally affected eastern church architecture up to the present day.

v. Social and Political.—Constantine, whose system of government was an expansion of the despotic methods introduced by Diocletian, removed the capital from Rome to Byzantium in A.D. 324, the position of the latter city being unrivalled as a great commercial centre on the trading highway between east and west. After his death rival emperors troubled the state, and disputes in the church were rife—the Council of Nice in A.D. 325 being the first of the general councils called to suppress heresies. The eastern emperors lost all power in Italy by endeavouring to force upon the west their policy of preventing the worship and use of images. By the election of Charlemagne, chosen Emperor of the West in A.D. 800, the Roman empire was finally divided.

vi. Historical.—Byzantium is said to have been founded in the seventh century B.C., and was a Greek colony as early as the fourth century B.C. Byzantine architecture is that which was developed at Byzantium on the removal of the capital from Rome to that city. It includes not only the buildings in Byzantium but also those which were erected under its influence, as at Ravenna and Venice, also in Greece, Russia, and elsewhere. During the reign of Justinian (A.D. 527–565) Italy was recovered to the Eastern Empire, accounting for the style of some of the buildings.

Ravenna became important owing to the Emperor Honorius transferring his residence there from Rome in A.D. 402, and it was created an archiepiscopal see in A.D. 438. After the fall of the Western Empire the town was taken by Odoacer, and in A.D. 493 Theodoric the Great took the city, which, remaining the residence of the Gothic kings till 539, rivalled Rome in importance. From A.D. 539–752 it was the seat of the Exarch of the Eastern Roman or Byzantine Emperors. The Byzantine style was carried on until Constantinople fell into the hands of the Turks in A.D. 1453, when it became the capital of the Ottoman Empire.

2. ARCHITECTURAL CHARACTER.

The general architectural character depends on the development of the dome, induced by the adoption of circular and polygonal plans for churches, tombs and baptisteries. This is in contrast with the Romanesque style, which developed the vault in Western and Northern Europe (page 224).

The change from the old Roman forms was of course gradual, but in the course of 200 years the East asserted itself, and under Justinian, the Church of S. Sophia (A.D. 532-537) was erected, and remains the greatest achievement in the style—the interior being perhaps the most satisfactory of all domed examples.

Although no line can be stated as separating distinctively the Early Christian and Byzantine styles, yet as already stated the Basilican type is characteristic of the former and the vaulted church with pendentives of the latter.

A Byzantine building consists generally of a brick carcass or "shell," constructed after the size of the marble shafts had been assured. The walls of this shell were finally sheeted internally with marble, and the vaults with colored mosaics on a golden back-ground. In fact no church was founded during this period in which mosaic was not intended to be employed, and the decoration of S. Sophia and the churches of Nicæa and Thessalonica show the perfection to which this was carried out. The core of the wall was generally of concrete, as in the Roman period, but the manner in which the bricks of the casing were arranged contributed greatly to the decoration of the exterior. They were not always laid horizontally, but sometimes obliquely, sometimes in the form of the meander fret, sometimes in the chevron or herring-bone pattern, and in many other forms of similar design, giving great richness and variety to the façades, as may be seen in the churches of Thessalonica. Externally an attempt was made to render the rough brick exteriors of Roman times more pleasing, by the use of bands and relieving arches of an ornamental character.

Byzantine art and influences were carried westward by traders, and are found at S. Mark, Venice, S. Vitale, Ravenna, S. Front, Périgueux, and elsewhere, largely directing the architecture of these districts.

The *dome*, already referred to, is the prevailing *motif* or idea of Byzantine architecture, and had been a traditional feature in the old architecture of the East, and M. Choisy, in his "Art de Bâtir chez les Byzantins," traces the influence of this tradition of domical construction on Greek architecture to show how from this fusion the later imperial architecture became possible.

Domes were now placed over square apartments, their bases being brought to a circle by means of "pendentives" (Nos. 79,

80, 82, 83 B, 84, 86, III C); whereas in Roman architecture these features were as a rule placed over a circular apartment. Windows were now formed in the lower portion of the dome, which in the later period was hoisted upon a high circular drum, a feature which was still further embellished in the Renaissance Period by the employment of a circular peristyle or colonnade. In vaulting, porous stones, especially pumice, were used; sometimes the domes were constructed of pottery, as at S. Vitale, Ravenna (No. 83 D), where it is formed with urns and amphoræ placed side by side and grouted with mortar. The architecture of the Byzantines was thus developed by the use of brick in the fullest manner, especially in domical vaulting, and there is an absence of preparatory and auxiliary work, M. Choisy remarking that, the "greater number of their vaults rose into space without any kind of support" (*i.e.*, without centering), by the use of large flat bricks, which is quite a distinct system, not derived from a Roman but from an Asiatic source. Byzantine art is the Greek spirit working on Asiatic lines, for the dome on pendentives was invented and perfected entirely in the East. In the Byzantine system of vaulting the vault surfaces gave the conditions of the problem, and the groins or angles of intersections were of secondary importance, presenting a direct contrast to the mediæval buildings of Europe.

The grouping of the smaller domes round the larger central one was very effective externally (No. 79), and one of the most remarkable peculiarities of Byzantine churches was that the tunnel vault and the dome had no additional outer covering, but were visible externally (No. 80 A); thus in no style does the elevation so closely correspond with the section as in the Byzantine.

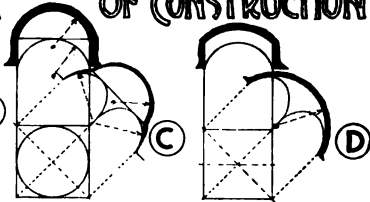
From the time when the architect permitted the forms of the vaults and arches to appear as architectural features in the façades, the regular entablatures of the Romans were abandoned, and in the church of S. Sophia is seen the fully-developed Byzantine style: for whereas in the older buildings of Rome, the columns and entablatures could be and were removed without causing the ruin of the building, in S. Sophia the true Greek expression of truth in construction was reverted to, its columns and capitals being not merely ornamental, but really supporting the galleries. The Classic orders were dispensed with, and the semicircular arches made to rest directly on columns designed for the purpose. The capitals, of which there are seven distinct types, four being in S. Sophia, assume a novel form (Nos. 88 and 89), appropriate to their new purpose of receiving the springers of arches, the voussoirs of which were always square, and not set in receding planes, as in so-called Gothic architecture.

As Freeman says: "The problem was to bring the arch and column into union—in other words, to teach the column to

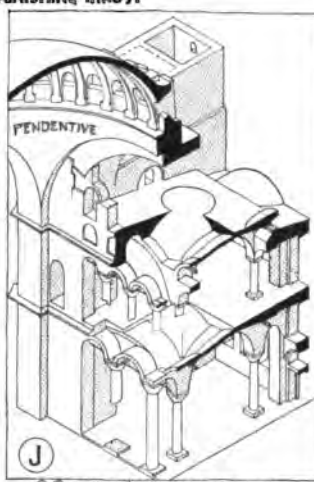
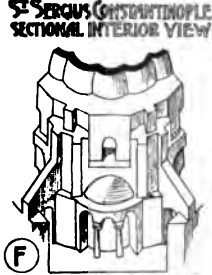
BYZANTINE EXAMPLES. I.

BYZANTINE SYSTEM OF CONSTRUCTION

DOMES CONSTRUCTION



METHOD TO FIND OUTLINE OF PENDENTIVE



support the arch." This was done by shaping the block of marble which formed the capital so that a simple transition from the square block to the circular shaft of the column was formed. Further, as Messrs. Swainson and Lethaby say, the numerous round shafts of S. Sophia exhibit a remarkable and beautiful structural expedient, by which the necking is entirely suppressed, and bronze annulets surround the shafts under the capital and above the base. These prevent the shafts from splitting—a likely result, since the monolithic shafts had to be set up contrary to the direction of the quarry bed—and also the lead seating from being forced out by the superincumbent weight. —

The science of construction acquired by the Romans descended to the Byzantines, for the walls were formed with a brick facing and concrete core—a method also employed for vaults, bridges, and aqueducts. The building procedure was developed somewhat as follows:—the general form of the building being more or less decided, the first thing necessary was to collect monolithic marble shafts, and it "was necessary to have a certain knowledge where such might be quarried or otherwise obtained, before even the foundations were prepared, for the columns decided the height and points of support of the building. These shafts once assured, the body of the structure was proceeded with as a brickwork shell without further dependence on the masons, who were only required to prepare the bases, capitals, and cornices, everything else being completed as a brick 'carcass.'" The building was thus made of vast masses of thin bricks, with mortar joints of equal thickness; and when this had settled down and dried, the walls were sheeted with their marble covering, the vaults overlaid with mosaic, and the pavement laid down. In this way the carcass was completed at once, the bricklayers not having to wait for the masons; and, further, by reserving the application of the marble until the structure was dry and solid, it was possible to bring together unyielding marble and brickwork with large mortar joints that must have settled down very considerably. This independence of the different parts of the structure was a leading idea in Byzantine construction, and is obviously necessary when the quantity of mortar is so great that the bricks become secondary in height to the joints.

Brick, moreover, was the material preferred in the construction of walls, and lent itself to all the caprices of the architect; for as interiors were always lined with marble and mosaics, or decorated with frescoes, such walls were the most suitable for the reception of these kinds of ornamentation. Bricks being so much used, it is not surprising that the Byzantines took great pains in their manufacture when it is remembered that they employed them in their military as well as in their ecclesiastical and domestic architecture. The form of these varied a great deal, but the

ordinary shape was like the Roman, an inch and a half in depth, and they were always laid upon a thick bed of mortar, as already mentioned. Moulds were used for the pieces forming cornices, and the shafts of columns when of this material were built of circular bricks. The universal use of brickwork made the Byzantines pay great attention to their mortar, composed of lime, sand, and crushed pottery, tiles or bricks, and it remains as hard as that in the best buildings of Rome.

The interiors were beautified by richly colored marble pavements in *opus sectile* or *opus Alexandrinum* (page 119).

The use of natural stones in mosaics and inlaid pavements had been abolished, and the art of enamelling had arrived at perfection, all the mosaics which still adorn the domes and apses being of colored glass enamel rendered opaque by oxide of tin, an invention which was introduced in the Early Christian period.

The extensive use of rich marbles and mosaics caused a flat treatment, with an absence of mouldings, cornices and modillions, which were subordinate to the decorative treatment.

The simple exteriors of brickwork, with bandings of stone, did not leave the same scope for mouldings as in other styles. Flat splays enriched by incised or low relief ornamentation were introduced, and mosaic and marbles were used, in a broad way, as a complete lining to a rough carcass, architectural lines being replaced by decorative bands in the mosaic, which was worked on rounded angles. One surface melts into another as the mosaic is continued from arch and pendentive upwards to the dome, and the gold of the background being carried into the figures, unity of surface was always maintained. Although columns of the richest marbles were taken from old buildings, the importation and sale of newly quarried columns and other decorative materials, such as rare marbles, did not in the least decrease. The Theodosian code in fact encouraged this branch of trade and industry, and the mode of ornamentation by means of colored marbles was carried to a greater extent than ever before. The quarries opened by the Romans continued to be used, and the workmen employed in them were governed by imperial decrees issued specially for their guidance.

3. EXAMPLES.

Byzantine examples consist mainly of churches and baptisteries. In the former, although a certain number follow the Basilican type, the majority are founded on the circular and polygonal plans of the Roman and Early Christian periods.

SS. Sergius and Bacchus, Constantinople (A.D. 527), erected by Justinian, is nearly square in plan, being a rectangle of

BYZANTINE EXAMPLES. II.

**NORTH-EAST
ELEVATION**

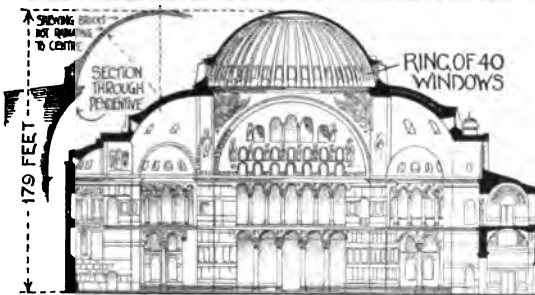
(A)



S. SOPHIA CONSTANTINOPLE

FOUNDATION STONE LAID BY JUSTINIAN A.D. 532. THE CENTRAL DOME IS 107' IN DIAM^{ER} & IS SUPPORTED BY 4 ARCHES ABUTTING 8 MASSES OF MASONRY 75 FT LONG & 25 FT WIDE. EAST & WEST ARE SEMI-DOMES WITH EXEDRÆ. THE AISLES ARE IN 2 STORIES. S. SOPHIA IS NOW USED AS A MOSQUE & IS COVERED WITH SARACENIC DECORATIONS. THE EXTERIOR IS IN BRICK.

ANTHEMIUS & TRALLES & ISIDORUS & MILETIUS; ARCHT^{ECTS}



(B)

**LONGITUDINAL
SECTION**

THE DOME IS CONSTRUCTED OF WELL-BURN'T BRICKS 2" THICK WITH MORTAR JOINTS NEARLY SAME THICKNESS IN LOWER PART & DOME. THE BRICKS ARE ABOUT 27" SQ. AT THE CROWN THEY ARE 2'7" SQ. THE JOINTS DO NOT RADIATE TO CENTRE, BUT HAVE A FLATTER INCLINATION WHICH DIMINISHES THRUST.

BAPTISTERY
INCLINED WAY TO GALLERIES

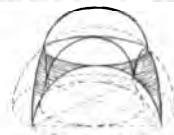
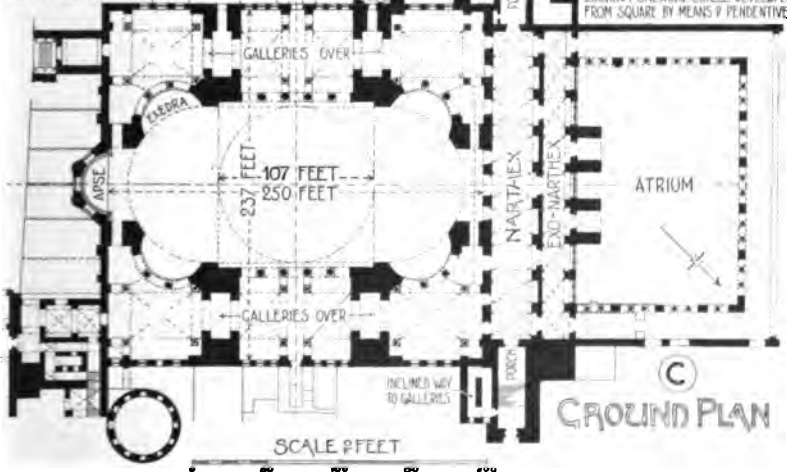


DIAGRAM SHOWING CIRCLE DEVELOPED FROM SQUARE BY MEANS OF PENDENTIVES



(C)

GROUND PLAN

109 feet by 92 feet over all, and has an interior arrangement very similar to S. Vitale (No. 83), but it has four niches only, and is inclosed in a square instead of an octagon (No. 79, E, F, G). The dome, 52 feet in diameter and 66 feet high, is visible externally, having no wooden roof, and is of a peculiar melon-like form caused by the formation of ridges and furrows from base to summit. This church, picturesquely situated on the shores of the Bosphorus, is in a ruinous condition, but was being partially restored by the Sultan at the time of the authors' visit in January, 1896. The beautiful frescoes and mosaics are, however, irreparably damaged in consequence of the penetration of rain through the roof.

S. Sophia, Constantinople (Hagia Sophia = "Divine Wisdom") (Nos. 79, 80, 81), was built by order of Justinian, in A.D. 532-537, on the site of two successive churches of the same name, *i.e.*:—(a.) The wooden-roofed basilica, erected by Constantine, A.D. 360. (b.) The church erected by Theodosius, A.D. 415. The architects were Anthemius of Tralles and Isidorus of Miletus.

The *Plan* consists of a central space 107 feet square, bounded by four massive piers, 25 feet square, connected above by semicircular arches, and supporting a dome 107 feet in diameter (*cf.* S. Paul, London). East and west are great semicircular spaces, crowned with semi-domes, and out of these are formed smaller *exedrae*, in their turn covered with semi-domes. The area thus formed is a great oval-ended nave 265 feet by 107 feet.

Outside this central area are aisles over 50 feet wide, in two stories, north and south, the upper story being for women. These aisles bring the main building approximately to a square, which, excluding the apse and narthex, measures 250 feet by 237 feet.

The narthex, to the west of the main building, was set apart for catechumens and penitents, and forms a grand apartment over 200 feet long by 30 feet wide; it is in two stories, the upper forming a gallery to the church. Further west is the outer narthex and atrium, with marble columns and brick pillars.

To the north and south, forming continuations of the four great piers already mentioned, are massive buttresses, 25 feet wide by 70 feet long, pierced with double arches on the ground and upper story. These piers take the thrust of the main arches and dome on the two sides where there are no semi-domes. SS. Sergius and Bacchus would resemble S. Sophia in plan if it were cut in two and a dome on pendentives placed over an intervening square, and the whole doubled in size.

The domical method of construction governs the plan, which is subservient to it. The square central space is crowned with a dome, 180 feet above the pavement, but in itself only 47 feet in height above its base (*i.e.*, less than a semi-dome).



81.

S. SOPHIA, CONSTANTINOPLE.

The minarets were added by the Mahometans in the fifteenth and sixteenth centuries.

The two semi-domes, east and west, abut against the great arches which support the central dome and act as buttresses to it on the east and west sides. The smaller exedrae are also covered with semi-domes, as has been stated. The pendentives carrying the central dome have a projection of 25 feet and a height of over 60 feet.

The great piers supporting the dome are of stones, the rest of the building being of brickwork. The construction of the dome is explained on No. 80.

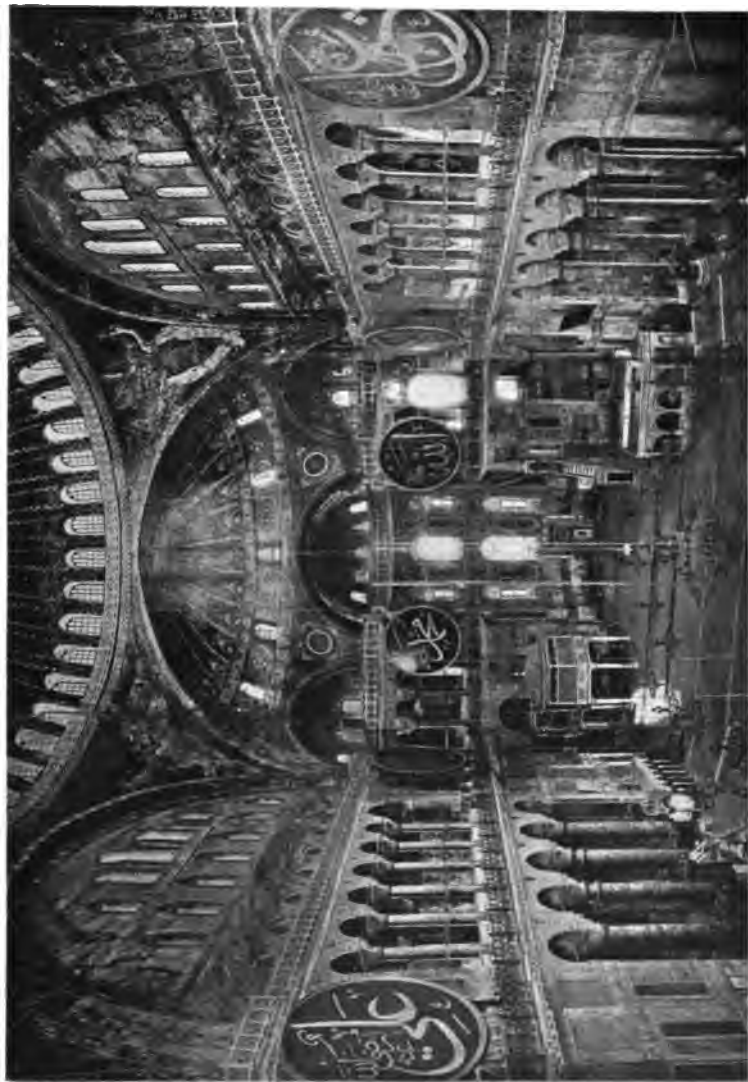
Internally, the actual effect of the whole is one of extreme intricacy, although the general scheme is very simple, while scale is obtained by the careful gradation of the various parts from the two-storied arcades to the aisles and lofty dome, which rests, with little apparent support, like a canopy over the centre, or, as Procopius, an eye-witness, described it, "as if suspended by a chain from heaven."

The impression is that of one great central domed space with semicircular domed ends, the height gradually decreasing from 179 feet at the centre.

The walls and piers are lined with beautifully-colored marbles (Phrygian white, Laconian green, Lybian blue, Celtic black, white marble with black veins from the Bosphorus, and Thessalian marble), in varied patterns, fixed by means of metal cramps; the floors are laid with colored mosaics of various patterns, and the vaults and domes are enriched with glass mosaics of the apostles, angels, and saints on a glittering golden ground. Although many of these are now concealed by matting covered with plaster, or are replaced by quotations from the Koran, yet the four pendentives still exhibit the six-winged seraphim, whom Mahometans acknowledge under the names of the four Archangels, Gabriel, Michael, Raphael, and Israfil, and when the light is favourable the figure of Christ can still be seen in the vaults of the apse.

The columns of many-colored marbles are used constructively to support the galleries which rest on a variety of groined vaults. Moulded bronze rings encircle the column shafts at their junction with the capitals and bases, and elsewhere. The lower stories of the aisles (north and south of the central space) are supported by four columns of dark green marble from the Temple of Artemis (Diana) at Ephesus, the upper stories having six columns of the same material. Each of the four small exedrae has two large columns of dark red porphyry below, brought from the Temple of the Sun at Baalbec, and six smaller columns on the upper story. The total number of columns in the church is 107 (the same number as the diameter of the church in feet), of which forty are below and sixty-seven above.

The capitals are mostly of the pyramidal or cubiform type, with small Ionic angle volutes and delicately incised carving.



Some bear the monogram of Justinian, and on a column to the south exedra on entering is the date 534.

A variation of the dossier block is in general used on the lines of the Classical abacus.

The lighting is partly effected by forty small windows piercing the dome at its base. Additional light is introduced through twelve windows in each of the spandrel walls, north and south, under the great arches which support the dome. The bases of the domes of the smaller exedræ are also provided with windows. Many of the windows are small and spanned by semicircular arches; others are more elaborate, as in those to the "Gynæceum," or women's gallery, reached from the exterior by four gently sloping ascents, one at each corner of the building, and from the interior by stone staircases, in which large semicircular headed openings are divided into six by columns in two heights, the lighting area being filled with lattice work of marble 3 inches thick, pierced with openings about 7 inches square, filled with glass. Externally the walls are faced with brick and stone in alternate courses. The vaulting of the domes and semi-domes is visible, being covered with lead $\frac{1}{4}$ -inch thick, resting on wooden battens placed immediately on the brick vaults. The immense buttresses already referred to, make imposing external features, as also the two great spandrel walls between them, deeply recessed from their face, and provided with windows lighting the central area. The plainness of the exterior causes the building to depend for effect entirely on the massiveness of its form and the general symmetry of its proportions.

S. Sophia is the masterpiece of Byzantine architecture as the Parthenon is of Greek, or the Pantheon of Roman; but neither in plan nor treatment does it seem to have been largely imitated, especially in respect of the abutting semicircular domes.

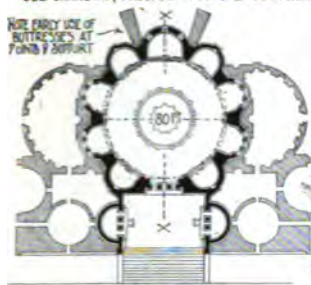
S. Irene, Constantinople, originally constructed by Constantine and several times destroyed and rebuilt, finally about A.D. 740, is interesting as preserving the Basilican plan of nave and two aisles with Eastern apse and Western atrium. It has a dome which is believed to be the earliest example, resting on a high drum pierced with windows to light the interior.

The **Theotokos Church, Constantinople**, dating from the ninth to the twelfth century, is a small but perfect example, having a double narthex crowned with three domes, and a central dome over the church itself.

The **Church of the Chora, Constantinople**, is an interesting example, dating originally from the fourth century, but subsequently much altered. It has a central area crowned with a dome resting on a drum 26 feet in diameter, pierced by windows, and has semicircular windows on three sides and an apse on the fourth. It has an inner and outer narthex, ornamented with

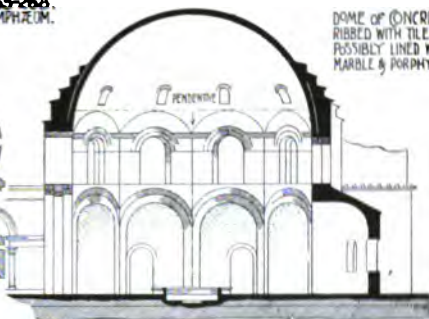
COMPARATIVE EXAMPLES of EARLY DOMED STRUCTURES

THE MINERVA MEXICA ROME A.D. 263-268.
USE UNKNOWN; PROBABLY DESIGNED AS A NYMPHEUM.



(A) PLAN

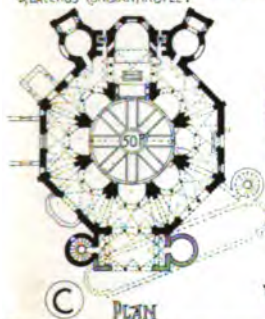
A DECON SUPPORTING A CIRCULAR DOME WITH EARLY FORM OF PENDENTIVES.



(B) SECTION ON X-X.

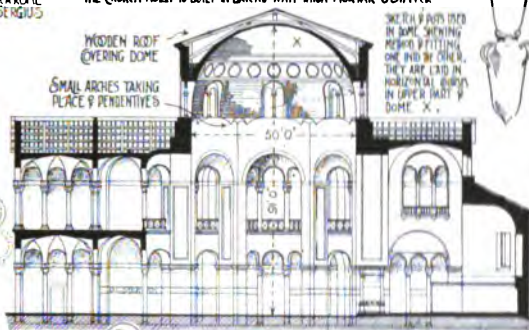
DOME OF CONCRETE RIBBED WITH TILES & POSSIBLY LINED WITH MARBLE & PORPHYRY.

ST VITALE RAVENNA ERRECTED A.D. 526-547 IN THE REIGN OF JUSTINIAN.
DESIGNED AFTER ITS PROTOTYPE THE MINERVA MEXICA ROME BUT OCTAGONAL ON PLAN & RESEMBLING S. SERGIUS & BACCHUS (CONSTANTINOPLE).



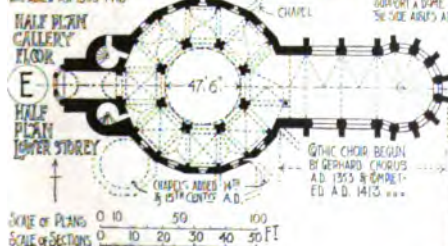
(C) PLAN

THE DOME IS COMPOSED OF HEAVY EARTHEN RIBS FITTED INTO EACH OTHER & TRUS BY ITS LIGHTNESS ENABLING THE BUILDERS TO DESPINE NAME WITH THE ARCHES & BUTTRESSES BEING NECESSARY IN S. SERGIUS & BACCHUS. THE CHURCH ITSELF IS BUILT IN BRICKS WITH THICK MORTAR JOINTS.



(D) LONGITUDINAL SECTION X-X.

CATHEDRAL AT AIX-LE-CHAPPEL ERRECTED A.D. 786-844 BY THE EMPEROR CHARLEMAGNE. IT RESEMBLES ST VITALE RAVENNA. IT WAS BUILT AS A ROYAL TOMB HOUSE AND AFTERWARDS USED AS THE CROWNIN PLACE OF THE WESTERN EMPERORS. THE CATH. CHURCH WAS ADDED A.D. 1553-1613.



(E) HALF PLAN LOWER STOREY
SCALE OF PLANS 0 10 50 100 FT
SCALE OF SECTIONS 0 10 20 30 40 50 FT

INTERNALLY THE CHURCH IS AN OCTAGON EACH ANGLE OF WHICH DIVERGES TO TWO SQUARS THUS FORMING AN EXTERNAL 16 SIDED FIGURE. THE INTERNAL PERIS SUPPORT A DOME 47'6" DIAMETER. THE SIDE ARCHES ARE IN 2 STOREYS.



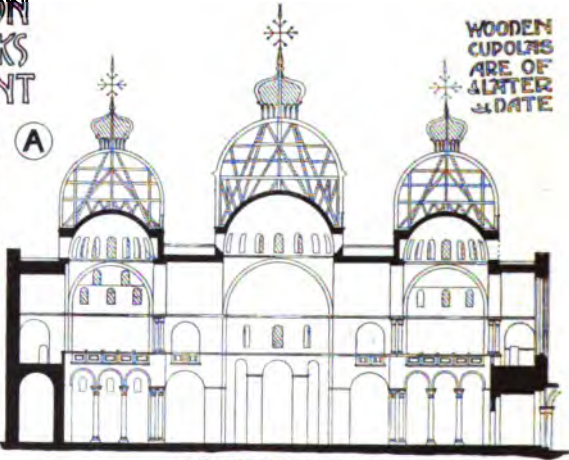
(F) Cross Section

BYZANTINE EXAMPLES. III.

COMPARISON OF ST MARKS AND ST FRONT

ST MARKS VENICE?

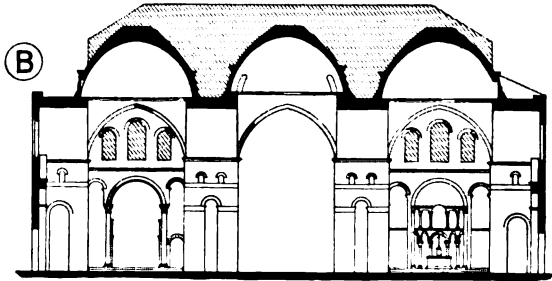
(A.D. 1063-1071)
(MARTHEX 1100-1350)
A CREEK CROSS ON
PLAN WITH CENTRAL
DOME & ONE OVER
EACH ARM OF THE
CROSS. THE PLAN
PROBABLY DERIVED
FROM THE CHURCH OF
THE APOSTLES AT
CONSTANTINOPLE
DEMOLISHED IN THE
13TH CENTURY



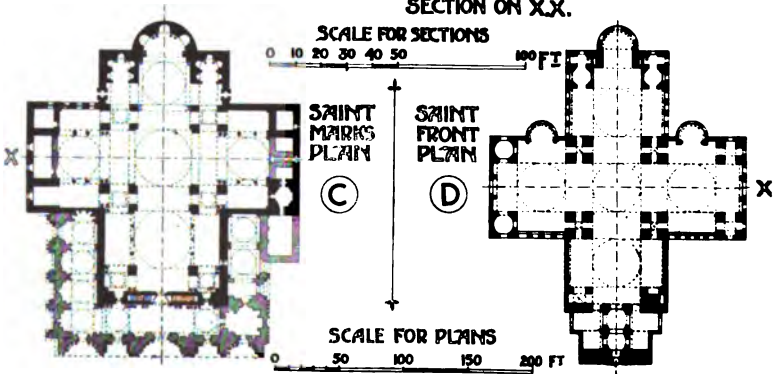
SECTION ON X.X.

ST FRONT PERIGUEUX

(A.D. 1120)
IS A MODIFIED
COPY OF ST MARKS



SECTION ON X.X.





S. MARK, VENICE.

large mosaic decorations, hence it is now known as the "mosaic mosque." It is supposed by some that the façade of this church served as a model for that of S. Mark, Venice (No. 85).

The **Church of the Holy Apostles, Constantinople**, founded by Constantine the Great, but rebuilt by Justinian, and destroyed in A.D. 1463, to make way for the Mosque of Sultan Mahomet II., was the second type of Byzantine plan, and is interesting as being the prototype of S. Mark, Venice (Nos. 84, 85, 86) (see below).

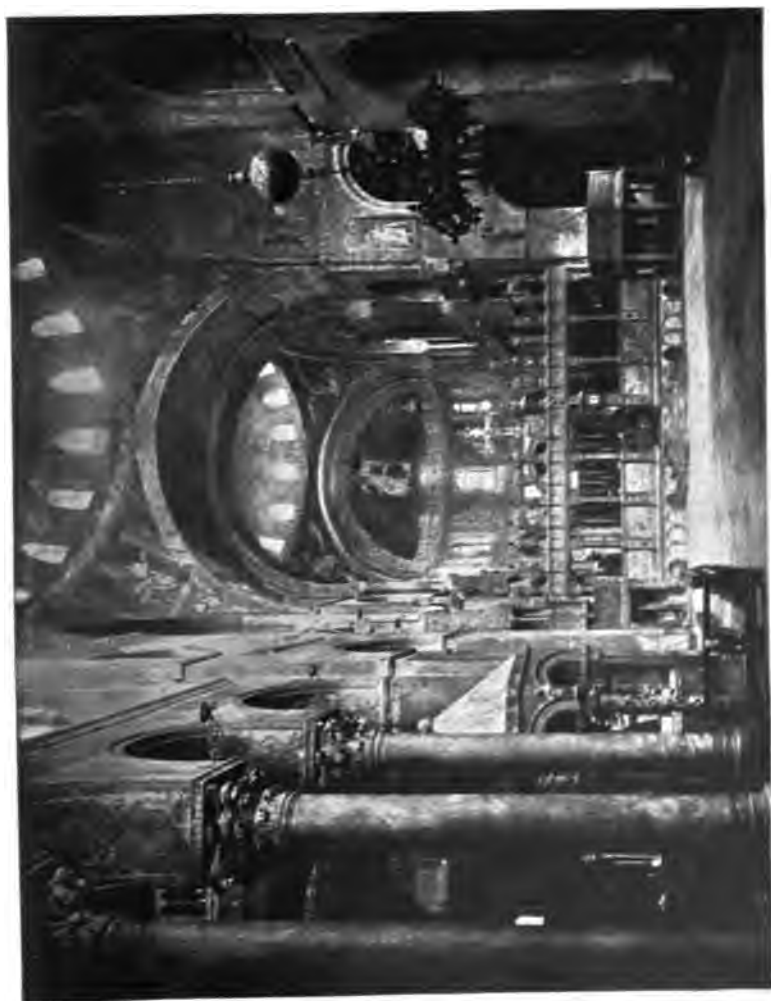
S. Vitale, Ravenna (A.D. 526-547) (No. 83 c, d), whose prototype was the Temple of Minerva Medica at Rome (No. 83 a, b) is octagonal on plan, an inner octagon of 50 feet being inclosed by an outer one of 110 feet. The apsidal chancel opens from the inner octagon, by a square bay cutting through the outer aisle. The relation of the chancel to the octagon is successfully designed. It is to be noted that the other seven arches of the inner octagon have columns placed on a half circle, carrying round the gallery usual in Eastern churches. In many particulars Byzantine influences are seen. The dome is composed of earthen pots, and protected by a wooden roof, thus differing in construction from Roman examples.

The church built by Charlemagne, and containing his tomb, at Aix-la-Chapelle (No. 83 e, f), is derived from this church (see page 261).

S. Mark, Venice (Nos. 84, 85 and 86), was erected, for the most part, between A.D. 1063-1071, the columns and marble mosaics to the exterior being added between 1100-1350. Venice was by situation one of the connecting links between the Byzantine and Franconian empires, and a great depôt of the traffic between the East and West, which is evident in Venetian architecture.

The *plan* of S. Mark (No. 84 c) is in the form of a Greek cross, of equal arms, covered by a dome in the centre (42 feet in diameter), and one over each arm of the cross, and is derived from the Church of the Holy Apostles at Constantinople. It is worthy of note that the square piers, which carry the dome, are pierced on the ground floor and gallery levels: the gallery arcade connects the piers on either side, the depth of the gallery being that of the pier. The vestibules fill out the western arm of the cross to a square on plan.

The interior (Nos. 84 a and 86) is richly veneered with colored marbles casing the lower part of the walls; above, and extending in one great surface over vault and dome, is a lining of richly colored glass mosaic, in which are worked figures of saints mingled with scenes from their lives, set off by a broad background of gold. Mosaic, in fact, is the real and essential decoration of the church, to which all architectural detail is subordinated.



S. MARK, VENICE.

The external façade (No. 85) has five entrances, enriched with shafts of many-colored marbles brought from Alexandria and the ruined cities of the East, forming a rich and beautiful portal. Mosaic panels also serve to enrich with color the spandrels of the arches. It must be remembered that this and the external domes are a later casing upon the original exterior of the usual Byzantine type (No. 84 A).

The effects of S. Mark have been described by Ruskin, who says that they depend not only upon the most delicate sculpture in every part, but also on the most subtle, variable, inexpressible color produced by transparent alabaster, polished marble, and lustrous gold.

The Byzantine style spread over Greece, Russia, and other parts, and has been the accepted style of the Greek church to the present day.

In **Greece** the buildings are small but exquisitely executed, as may be seen in the little *Metropole Cathedral* (No. 87), the *Church of the Kapnikarea*, and other churches at Athens; the *Church of Daphni*, near Athens, and the *Monastery of S. Luke of Stiris*, on the north of the Gulf of Corinth.

At Thessalonica (Salonica), in Macedonia, *S. George* (A.D. 400) is an early example of a domed church, and *S. Demetrius* (A.D. 500–550) an example of a five-aisled basilica with transepts (not showing externally), and galleries.

In **Russia** among the best known examples are the *Cathedrals of Moscow, Kieff, and Novgorod*, all of which have a decided Eastern aspect, due to the use of bulbous-shaped domes and unusual details.

In **Armenia** are also interesting examples with local characteristics, such as the Church of *S. Sophia, Trebizond*.

4. COMPARATIVE.

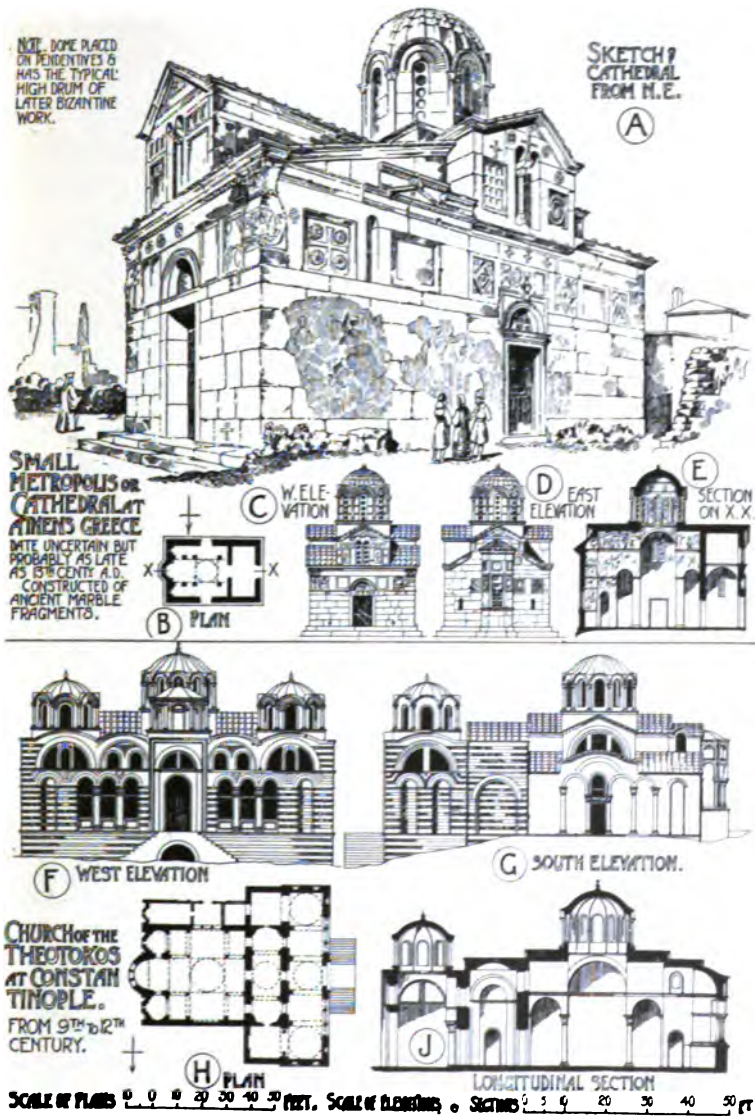
A. Plans.—Byzantine churches are all distinguished by a great central square space covered with a dome, supported by means of pendentives, shown in No. 79 J, K. On each side extend short arms, forming a Greek cross, which with the narthex and side galleries make the plan nearly square (Nos. 80, 84). The narthex was placed within the main walls.

The essential difference in plan between a Byzantine church and an Early Christian basilican church are as follows :—

The leading thought in a Byzantine church is vertical, by the grouping of domes round a principal central one, towards which the eye is drawn.

The leading idea in an Early Christian basilica is horizontal, by means of the long perspective of columns, which direct the eye towards the apsidal termination.

BYZANTINE EXAMPLES. IV.



b. Walls.—These were often constructed of brick. Internally, all the oriental love of magnificence was developed, marble casing and mosaic being applied to the walls; hence a flat treatment and absence of mouldings prevailed. Externally the buildings were left comparatively plain, although the façade was sometimes relieved by alternate rows of stone and brick, in various colors.

c. Openings.—Doors and windows are semicircular headed (No. 89 г, н), but segmental and horse-shoe arched openings are sometimes seen.

The windows are small and grouped together (Nos. 80 а and 87). The universal employment of mosaic in Byzantine churches, and the consequent exclusion of painted glass, rendered the use of such large windows as the Gothic architects employed quite inadmissible, and in the bright climate very much smaller openings sufficed to admit the necessary light. Tracery was, in consequence, practically non-existent as a northern architect would understand it. The churches depend largely for light on the ring of windows at the base of the dome, or in the "drum," or circular base on which the dome is sometimes raised (No. 86), and on openings grouped in the gable ends (No. 80 а). Such windows, grouped in tiers within the semicircular arch beneath the dome, are a great feature in the style.

Portions of the windows are occasionally filled with thin slabs of translucent marble (No. 89 г).

d. Roofs.—The method of roofing these buildings was by a series of domes formed in brick, stone, or concrete, with frequently no further external covering. In S. Sophia the vaults are covered with sheets of lead, a quarter of an inch thick, fastened to wood laths, resting on the vaults without any wood roofing (No. 80 в). Hollow earthenware was used in order to reduce the thrust on the supporting walls (No. 83 д).

The Byzantines introduced the dome placed over a square or octagonal plan by means of pendentives (No. 79 j), a type not found in Roman architecture.

In early examples the pendentives were part of one sphere. A good idea of this type is obtained by halving an orange, cutting off four slices, each at right angles to the last, to represent the four arches, and then scooping out the interior; the portion above the crown of these semicircles is the dome, and the intervening triangles are the pendentives. Such domes are rare, however, perhaps the only example in Europe being that over the tomb of Galla Placidia (No. 73 н, j, к), already described (page 187). In the later type the dome is not part of the same sphere as the pendentives, but rises independently from their summits (Nos. 80 в, 111 с). The early domes were very flat; in later times they were raised on a drum or cylinder.



BYZANTINE CAPITALS.
From S. Mark, Venice.

E. Columns.—In the earlier buildings, these were taken from ancient structures, which not being so numerous in the East as in the neighbourhood of Rome, the supply was sooner exhausted; and thus there was an incentive to design fresh ones. Capitals sometimes took a form derived from the Roman Ionic (No. 89 c) or Corinthian types (Nos. 88 and 89 d), or consisted in the lower portion of a cube block with rounded corners, over which was placed a deep abacus block, sometimes called a “dosseret” (No. 89 d, e). This represented the disused Classic architrave, and aided in supporting the springing of the arch, which was larger in area than the shaft of the column. Further, an altered shape of capital was required to support the arch, a convex form being best adapted. The surfaces of these capitals were carved with incised foliage of sharp outline, having drilled eyes (No. 88) between the leaves. Several other types are shown in No. 89.

Columns were used constructively, but were always subordinate features, and often only introduced to support galleries, the massive piers alone supporting the superstructure.

F. Mouldings.—These were unimportant, their place being taken by broad flat expanses of wall surfaces. Internally, the decorative lining of marble and mosaic in panels was sometimes framed in billet mouldings, probably derived from the Classic dentils, and flat splays enriched by incised ornamentation were used. Externally, the simple treatment of the elevations in flat expanses of brickwork, with occasional stone banded courses, did not leave the same scope for mouldings as in other styles.

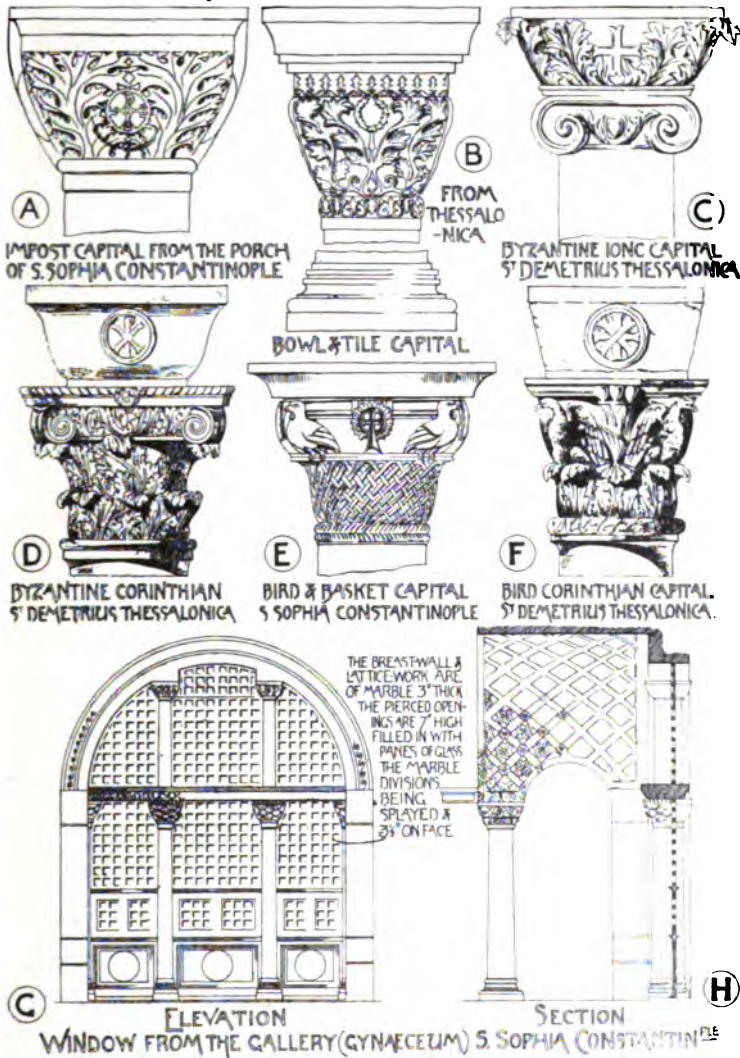
G. Ornament.—The scheme of ornamentation was elaborate in the extreme, the walls being lined with costly marbles with the veining carefully arranged so as to form patterns, and the vaults and upper part of walls with glass mosaic having symbolic figures, groups of saints and representations of the peacock (the emblem of immortal life), the whole forming a striking contrast to the less permanent painted frescoes usually adopted in the Western Romanesque churches (page 227).

Mosaic thus was used in a broad way as a complete lining to a rough structure, and architectural lines were replaced by decorative bands in the mosaic. One surface melts into another as the mosaic sheet creeps from wall, arch, and pendentive up to the dome, and the gold surfaces being continued as a background to the figures, unity of surface is always maintained.

Greek rather than Roman technique was followed in the carving, due to the origin of the craftsmen. The carving was mainly executed in low relief, and effect was frequently obtained by sinking portions of the surfaces. A special character of the carving was due to the use of the drill instead of the chisel (No. 88). The acanthus leaf, deeply channelled, and of V-shaped section, is

BYZANTINE ORNAMENT.

BYZANTINE CAPITALS



adopted from the Greek variety, but became more conventional, with acute-pointed leaves, drilled at the several springings of the teeth with deep holes.

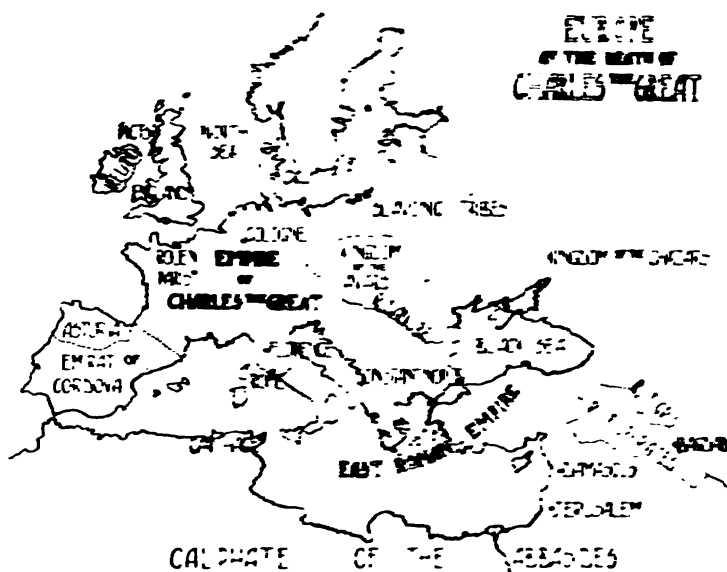
The great characteristic of Byzantine ornament as compared with Classical, is that the pattern is *incised* instead of seeming to be *applied*, for the surface always remained flat, the pattern being cut into it without breaking its outline.

Grecian and Asiatic feeling strongly pervades Byzantine ornamentation, and this is accounted for by the fact that Constantinople was a Greek city, and in close contact with the East, and Oriental methods.

Note.—A good general idea of the exterior of a church in this style is to be gained from the Greek Church in the Moscow Road, Bayswater, erected by Oldrid Scott, as also the new Roman Catholic Cathedral at Westminster by the late John F. Bentley. The mosaics and casts in the Victoria and Albert Museum should also be inspected.

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90.

ROMANESQUE ARCHITECTURE IN EUROPE.

GENERAL INTRODUCTION.¹

I. INFLUENCES.

i. Geographical.—The style which grew up on the decay of the Roman empire, and is known as Romanesque, was carried on throughout practically the whole of the Western empire—that is, in those countries which had been directly under the rule of Rome. The position of each country will be slightly touched upon under its own heading. The influence of Byzantine art brought through Ravenna and Venice also influenced the Italian Romanesque in Lombardy and Europe generally.

¹ Before treating of the development of the style peculiar to each country, a general outline sketch is given.

ii. **Geological.**—In these early times a rough use of the material at hand characterizes the style in each country, and will be referred to under the same.

iii. **Climate.**—Local styles were favoured by the variations of climate north and south of the Alps, as referred to in each country.

iv. **Religion.**—The Christian Church, which was the civilizing and educating agency of the period, was striving to extend its boundaries in Northern Europe, and the erection of a church was often the foundation of a city. The monastic communities, with the encouragement and aid of Charlemagne, came into existence. The papacy had been rising to great power and influence, and, directed with skill, it rivalled or controlled such civil government as existed. The Pragmatic Sanction (A.D. 554) had already conferred authority on the Bishops over the provincial and municipal governments, thus increasing the power of the Church, with which now often rested the nomination of public functionaries and judges. As East and West drifted apart their architecture developed on opposite lines, but architecture of Western Europe due to Eastern influence is classed as Byzantine. The different countries looked to Rome until each developed its own style. Religious enthusiasm and zeal prevailed, and was manifested in magnificent edifices, and in creed warfare, so that when the Turks overran Palestine, the loss of the Holy Places resulted in the long warfare known as the Crusades (1096–1270) between the Christians of the West and the Mahometans of the East.

Until the middle of the twelfth century science, letters, art and enlightenment generally were the monopoly of religious bodies, and pupils of monks afterwards became the designers of many of the great Gothic Cathedrals.

The feudal rank of bishops and abbots made them in some sense military chiefs, occasionally taking the field in person. Schools attached to certain monasteries discharged to some extent the functions of universities, as those at S. Gall, Tours, and Rheims, and the aid thus rendered by monastic institutions to architecture was therefore important. Down to the thirteenth century, architecture was practised largely by the clergy and came to be regarded as a sacred science, as stated by Albert Lenoir in "*l'Architecture Monastique*." Dr. Jessop's "*Daily Life of an English Monastery*" is interesting as showing the life led by the monks, and may be studied with advantage. (For a description of the typical plan of a monastery see page 276).

Among the chief monastic orders were the following:—

(1.) The *Benedictine order*, founded in the South of Italy in the sixth century by S. Benedict, by whose decree architecture, painting, mosaic and all branches of art were taught. All the

older monasteries in England belonged to this order, Canterbury (No. 118 B) and Westminster Abbey (No. 127) being the chief establishments.

The usual arrangement consisted of a square cloister having on one side a church of cruciform plan with aisles, the transept forming a part of one side of the cloisters. The refectory was usually parallel to the nave, on the opposite side of the cloister. The dormitory was generally placed on another side with a staircase in connection with the church for night services.

The manuscript plan existing in the Library of the monastery of S. Gall, in Switzerland, is interesting as showing what was considered a typical plan of the buildings of this order (page 261).

(2.) The *Cluniac order* was founded in A.D. 909, the celebrated Abbey at Cluny being the headquarters. The plan was especially notable for double transepts, a feature which was adopted in many English Cathedrals, as at Lincoln (No. 117 F) and Salisbury (No. 117 E).

(3.) The *Cistercian order* was founded in A.D. 1098, at Cîteaux, in Burgundy. In plan, the typical church was divided into three parts transversely by screens, walls, or steps. There were frequently no aisles. The transepts were short, as also was the eastern arm of the cross, and the choir extended westward of the transepts. There was an absence of towers and painted glass. The influence of the Cistercian foundation extended to various countries of Europe. In England the most important were Furness, Fountains, Roche, and Kirkstall Abbeys.

(4.) The *Augustinian order* differed little from the Benedictine. It was introduced into England in A.D. 1105, and Bristol, Carlisle, and Oxford Cathedrals were founded by this order.

(5.) The *Premonstratensian order* was instituted at Prémontré, in Picardy, in A.D. 1119, and Castle Acre Priory in England is an example.

(6.) The *Carthusian order* was founded by S. Bruno, about A.D. 1080, the chief French establishment being the *Grande Chartreuse*, near Grenoble, others being Vauvert, Clermont in Auvergne, Villefranche de Rouergue, and Montrieux. Two churches were preferred, one for the monks and the other for the people. In plan the typical feature was the great rectangular cloister, surrounded by an arcade on which the monks' cells opened, each being self-contained and with its own garden. By the rules of the order, speech was interdicted, and the Carthusian must work, eat and drink in solitude. Such a régime explains the extreme severity of their architecture. In Italy the establishments at Florence and the Certosa near Pavia, and in England, the Charterhouse, London, were the most important.

(7.) The military orders included the *Knights Templars* and *Hospitallers*. The churches of the Templars were circular

in plan, as in the Temple Church, London, and those at Cambridge, Little Maplestead, and Northampton. It is supposed they were erected in imitation of the Rotonda of the Holy Sepulchre at Jerusalem.

(8.) The *Friars*, of which there were several orders, were founded at a later period. Their churches were large, plain, and without aisles, being designed for preaching purposes.

(a.) The *Dominicans* (preaching or black Friars) were founded by S. Dominic about A.D. 1170, and later held a high place in Christian art, Fra Angelico being the best known member of the order. They came to England about A.D. 1217.

(b.) The *Franciscans* (mendicant or grey Friars) were founded by S. Francis of Assisi, in A.D. 1209, and were distinguished for intellectual capacity, Roger Bacon being one of the most distinguished members. They first came to England in A.D. 1216.

(c.) The *Carmelites* (or white Friars), were driven out from Mount Carmel by the Saracens, in A.D. 1098. They came to England in A.D. 1229.

(d.) The *Austin Friars* (or Hermits).

(e.) *Friars of the Holy Trinity*, instituted in A.D. 1197.

(f.) *Crutched (or crouched) Friars*, instituted in Bologna, in A.D. 1169.

(9.) The *Jesuits* were established in order to crush the Reformation, and first came to England in A.D. 1538.

v. Social and Political.—The system of feudal tenure, or the holding of land on condition of military service, was growing up, and caused important changes in the social and political organization of states. While through its operation the class of actual slaves died out, still the poorer freemen gradually came to be serfs, bound to the land and passing with it, on a change of ownership.

The growth of the towns as civilization advanced is noticeable, and the privileges which they acquired, amounting almost to independence, rapidly gave them importance.

Constant warfare rendered the condition of the people unsettled during this period, and skill in craftsmanship was at the lowest ebb. Christianity and civilization gradually extended from southern to western Europe. The clergy—the scholars of the period—directed the building of the churches, while the influence of the freemasons produced important results.

vi. Historical.—In the year A.D. 799 the Roman Empire in the West practically passed from the hands of the Romans, by the election of the first Frankish King, Charlemagne, whose election is a convenient date to mark the end of the Roman Empire as such. Till the time of Charlemagne very little

building was done, but he in a great measure restored the arts and civilization to Western Europe before his death in A.D. 814.

Before the year A.D. 1000, when it was popularly supposed that the world would come to an end, little building was carried out, but after the millennium had passed, buildings sprang up in all parts, with many local peculiarities, which will be noticed under each country; but the change was slow, traditional forms being firstly transformed in general design and detail, and then new features created.

Nearly all the nations of Europe had at this time come into existence; France, Germany, and Spain, were becoming powerful and tending to set aside the rule of the Holy Roman Empire, which now had become only a title. In northern Europe, Denmark, Sweden, and Norway were distinct kingdoms, and England had become welded into one by the Norman kings at the end of the eleventh century.

2. ARCHITECTURAL CHARACTER.

The term **Romanesque** may be said to include all those phases of Western European architecture which were more or less based on Roman art, and which were being carried out, in a rough and ready way, in various parts of Europe, from the departure of the Romans up to the introduction of the pointed arch in the thirteenth century.

The general architectural character is sober and dignified, while picturesqueness is obtained by the grouping of the towers, and projection of the transepts and choir.

As helping towards the appreciation of the character of Romanesque architecture, imagine an ancient civilization of vast extent, devoid of physical force, and recognisable only by the multitude of its monuments, some intact, others injured or partially destroyed, all unguarded, and most of them disused—a calamity which happens in due course to every great nation or group of peoples; and further suppose that the civilization is represented by a man, dormant, but who slowly, and with many a contortion, and many a yawn, threw off the sleep of ages and awakened to a sense of the treasure he possessed, of the wants he began to understand, of the means to the ends he would attain. In his midst were ruins of vast edifices, some still standing among heaps of stones hewn and carved, of sculptured capitals and friezes, of monoliths of porphyry and marble, while his own shelter afforded him little protection either from heat or cold. What happened? As time went on he gathered up the smaller fragments and arranged them perhaps upon the foundations, still intact, of an ancient building, and as he gradually acquired a knowledge of the uses to which he might apply this and that fragment, he insensibly



91. THE BAPTISTERY, CATHEDRAL, AND LEANING TOWER, PISA.
With Campo Santo in the background.

produced a new art founded on the old. This explains the birth of Romanesque, for on the collapse of the Western Roman Empire, the quarry of the ruins of ancient buildings largely influenced the work done, both in construction and decorative treatment, for the earlier buildings of the period were often built from the remains of ancient Roman buildings in the vicinity. In the course of time, however, a new style was evolved, for, putting aside spasmodic efforts, the period of the tenth to the twelfth centuries is remarkable for the tentative employment of a new constructive principle and a new use of material. The first was the principle of equilibrium which succeeded that of inert stability as used by the Romans, and the second was the employment of dressed stonework in comparatively small pieces, connected with mortar beds of considerable thickness. This was a method not before attempted, because the materials in use up to that time had not demanded it. By this new employment of materials, the whole current of architecture was turned to a constructive system which should answer to its needs, and which, after many tentative experiments, was to lead to the next glorious period of architecture—the thirteenth century—in which elasticity of structure was joined to the principle of equilibrium.

In Italy (page 228) there were various early Christian edifices erected at Ravenna from the fifth to the seventh centuries, for Ravenna was the principal city in Italy during this period, being the seat of the Exarch or representative of the Byzantine Emperor in the western part of his dominions. These buildings partake, naturally, of the elements of the fully developed Byzantine style, in the same way in which S. Mark, Venice, and S. Front, Perigueux, was the result of the close connection of these centres with the trade and commerce of the East (No. 84).

In France (page 246), especially in the Western and Northern Provinces, the old traditional basilican plan was preferred and adhered to during the eleventh and twelfth centuries, with certain exceptions, notably S. Front, but the dome raised on pendentives became the common kind of vaulting, in the South, in conjunction with the aisleless nave. It is worthy of note also that the use of the pointed arch occurred in the South of France sooner than in the North, and it is considered by some, but with apparently little foundation, to have been derived from contact with the Saracens, who invaded this portion of France from 719–732. Further, the development of monasteries in the eleventh century gave a great impulse to civilization and agriculture, and exercised considerable influence on architecture. Provence was, moreover, in the twelfth and thirteenth centuries the chief centre of the growing traffic from the East, and the highway by which artistic and other products of the Levant were dispersed through France and the North of Europe. Similarly, the development from Roman to Gothic art was

accomplished through the ordeal of the destructive, yet purifying dissolution of the Dark Ages, whence the true spirit of Roman construction emerged, cleared to a great extent of the extraneous elements with which it had been so long encrusted. Up to the end of the twelfth century the Provençal architects had led the way, but at this period the lay architects of the North, seizing on the Provençal principle of the Pointed arch, soon developed from it the magnificent Gothic system of the perfected architecture of the thirteenth century.

Romanesque Vaulting.

The Roman system of plain cross vaulting (No. III A), was used in Europe up to the twelfth century, when it began to be superseded by the "groin-rib" type of vaulting, in which a framework of ribs supported vaulting surfaces of thinner stone, known as "severies," or "in-filling." This method introduced a new principle in vaulting, viz., designing the profile of the groin ribs and leaving the form of the vaulting surfaces to adapt themselves to them; whereas in Roman architecture the vaulting surface was first settled, and the profile of the groins followed as a matter of course. It was therefore necessary for the Romanesque architects to find the profile of the ribs, and especially that of the diagonal rib, which had previously been settled without design, as mentioned above, by the intersection of the two vaulting surfaces meeting at right angles. If the vaulting surfaces were semi-cylindrical the diagonal groin was of necessity a semi-ellipse, but the use of ordinates, as shown in No. III E, does not appear to have been employed by the Romanesque architects, who surmounted the difficulty arising from the difference of span of the diagonal and transverse ribs as follows:—(a.) On the Continent, especially in Germany and France, the vaulting ribs were usually portions of circular curves of similar curvature starting from the same level, thus the diagonal rib, having the longest span, rose to a greater height than the transverse and longitudinal ribs (No. 112, D³). The panelling was then filled in on the top of these ribs, and in consequence the structure was highly domical. (b.) In England, however, where the vaults were generally constructed with level ridges, this domical form was not used, the difference in height between the diagonal and the transverse ribs being equalized by stiling the latter (No. 112 B, D³, G) or else by forming the diagonal rib as a segment of a circle, the longitudinal and transverse ribs becoming semicircular (No. 112 D³). In vaulting an oblong compartment the difference between the heights of the diagonal and wall ribs was still greater and produced an awkward waving line of the groins on plan (Nos. 111 B and 112 C).

In the vaulting of the naves of the Romanesque churches in

Germany, as at Worms (No. 105 c), Mayence and Spire; in France, as at the Abbaye-aux-Hommes (No. 112 E, F), and Abbaye-aux-Dames at Caen, and Nôtre Dame, Paris (No. 157); and in England, as at Canterbury; the difficulty of spanning oblong compartments was surmounted by including two of them in one square bay of vaulting, each main bay corresponding with two square compartments of the side aisles (Nos. 94 A, B, E and 105). In some instances the intermediate pier was carried up as a vaulting shaft and formed the vaulting compartment into six parts on plan, which was then known as "sexpartite" (six part) vaulting (Nos. 100 c, 105 B and 112 F). The weight of the vaulting in this case was therefore supported by alternate piers, which were accordingly strengthened (No. 105 c). During the following centuries this principle of rib design became more complex by the multiplication of the frame-work of ribs described under Gothic vaulting (page 272). It will also be found that all these difficulties of accommodating the heights of ribs of different spans, especially in oblong compartments, were surmounted by the introduction of the pointed arch (No. 111 D and 112 D).

3. EXAMPLES (refer to each country).

4. COMPARATIVE.

A. **Plans.**—In church architecture further developments from the type of the Early Christian Church took place. Charlemagne gathered around him artists and skilled workmen, and calling architecture out of its sleep, took the Roman basilica as a model for the new churches. Transepts were usually added, and the chancel prolonged further east than in the basilicas, the church partaking more and more of a well-defined cross on plan, as at S. Michele, Pavia (Nos. 94 and 95). The transepts were the same breadth as the nave, which was usually twice the width of the aisles. The choir was raised considerably by means of steps, and underneath, supported on piers, was formed a vaulted crypt as at S. Miniato, Florence (No. 93) and S. Michele, Pavia (No. 94), in which the saints and martyrs were buried. The earlier examples have choirs without aisles, the latter, however, being continued round in later examples.

The cloisters in connection with the churches are often of great beauty and have capitals and other features elaborately carved.

The towers are special features, and of great prominence in the design, as at the Church of the Apostles at Cologne (Nos. 104

and 105 c). They are either square, octagonal, or circular, with well-marked stories, having windows to each, and are placed at the west and east ends and the crossing of nave and transepts.

B. Walls.—Roman work and precedent, of course, influenced all constructive art in Europe, although technical skill was at a very low ebb during this period. Walls were in general coarsely built, having on the exterior, buttresses formed as pilaster strips of slight projection, connected at the top by horizontal mouldings, or by a row of semicircular arches resting on a corbel table projecting from the wall. [Semicircular arches, resting on rudely formed capitals, also occur.] Other peculiarities are referred to in the comparative table of each country.

c. Openings.—The door and window openings are very characteristic. The principle upon which the jambs were formed was in receding planes, or rectangular recesses, known as "orders," in which were placed circular columns or shafts. The arches followed the same method, being built in concentric rings (No. 94 F, H, J). A continuous abacus often occurs over these columns, and the profile of the jamb is carried round the semicircular portion of the arch in southern examples.

The principal doorways are usually placed in the transepts.

The characteristic rose (or wheel) window occurred over the principal door of the church in the west front, as at Iffley Church, Oxon (No. 138); also in Southern Italian examples, as at Palermo.

D. Roofs.—The general employment of vaulting, especially over the side aisles in the eleventh century, was due to the desire of fire-proofing the building, but the central nave was still often covered with a plain wooden roof.

The form of arch universally employed was semicircular [(No. 94 A), often raised, *i.e.*, stilted (No. 112 D³, G).

In early examples rib mouldings were not used in the vaulting, but when introduced, about 1100 A.D., were at first plain, and afterwards moulded in a simple manner (No. 94). Intersecting barrel vaults (No. 112 G) were usual, and the difficulty in constructing these in oblong bays led to the use of pointed arches in later times. When the crossing was crowned by an octagonal dome, four of the sides were carried on "squinch" arches (Nos. 94 and 105). The Romanesque architects used "flying buttresses" under the aisle roof, in the case where the thrust of a vaulted roof had to be met (Nos. 94 and 100); but it was left for the Gothic architects of the thirteenth century to place them above the aisle roof and weight them with pinnacles.

E. Columns.—The shafts of the columns have a variety of treatments, flutings being used (Nos. 98 B, 107 L), of vertical, spiral, or trellis work form, or the whole shaft is sometimes covered with sculptured ornaments. In early examples forms of the Corinthian or Ionic capitals occur—as in the third column from

the right in S. John's Chapel, Tower of London (No. 135), where Classic influence is apparent. Also see Nos. 98 J, K, L, M, and 103 D, E.

The capital in later times was often of a cushion (cubiform) shape, as in S. John's Chapel, Tower of London (No. 135), with lower corners rounded off and no carving, or is sometimes richly carved and scalloped (Nos. 146 and 148 B, C).

F. Mouldings.—These were often carved elaborately, as will be referred to in English Romanesque (Norman) architecture (No. 139).

The abacus over the capital (Nos. 98, J, M, 103, 107 and 146) is always distinctive in form; it is higher, but projects less than in the Classical style, and is moulded with alternate fillets and hollows. The base to the column (Nos. 107 D, H, and 146) is generally an adaptation of the old Classical form, or Attic base, resting on a square plinth, at the angles of which flowers or animals were occasionally carved to fill up the triangular part, and the lower circular moulding often overhangs the plinth.

G. Ornament.—The carving and ornaments were derived from many types of the vegetable and animal kingdom and treated in a conventional way, often but rudely carved (No. 139). In the interiors fresco is more commonly used than mosaic, which required great technical skill. Early stained glass was influenced by Byzantine mosaic.

Note.—The above are the principal characteristics of the style as a whole. Local influences of taste, climate, geography and geological formations were instrumental in producing the different characteristics of each country.

ITALIAN ROMANESQUE.¹

CENTRAL ITALY.

"In Middle Rome there was in stone working
The Church of Mary painted royally
The chapels of it were some two or three
In each of them her tabernacle was
And a wide window of six feet in glass
Coloured with all her works in red and gold."

I. INFLUENCES.

i. **Geographical.**—The boundaries of Central Italy extended to Florence and Pisa on the north and west, and to Naples on the south. Pisa was by position a maritime power, while Florence lay on the great route from south to north, commanding the passage of the Arno.

ii. **Geological.**—Tuscany possessed greater mineral wealth than any other part of Italy, and building stone was abundant. The ordinary building materials of Rome were bricks, local volcanic stone (tufa or peperino), and Travertine stone from Tivoli, a few miles off. Marble was obtained from Carrara, or Paros and the other Greek isles.

iii. **Climate.**—(See Roman architecture, page 112.)

iv. **Religion.**—It was during this period that, although the Popes had only small temporal dominions, they began to make their power felt in civil government, and the disputes with the emperors began. Pippin, king of the Franks, asked by the Pope (Stephen II.), defended the latter from the Lombards and gave him the lands they had seized and also the chief city of the Exarchate (Ravenna), which the Pope accepted in the name of S. Peter. Thus in 755 Central Italy severed its connection with the Empire and became independent, thereby inaugurating the temporal power of the papacy. Charlemagne, invited by Pope Adrian I. (772-779), advanced into Italy in 773, and, after defeating the Lombards, entered Rome for the first time in 774. He gave the

¹ The style is divided into three—central, north, and south. The comparative table of the three together is given on page 242.



PISA CATHEDRAL.

Dukedom of Spoleto and other concessions to Adrian, thus adding to his temporal power, and from this period connection with Byzantium was broken off. Gregory VII. ruled that the clergy should not marry, and that no temporal prince should bestow any ecclesiastical benefice, decisions which resulted in the struggles between the Guelphs and Ghibellines (page 405).

v. Social and Political.—In Italy, especially in Tuscany, an artistic movement, in which architecture was most prominent, took place in the eleventh century, the daughter arts of painting and sculpture being in a state of inaction. The growth of an industrial population, the increase of commerce and the independent views caused by education, were important factors in the rise of Naples, Pisa and Amalfi and other cities for self-defence, owing to insufficient protection from Constantinople.

vi. Historical.—Genoa, Pisa, and Amalfi sent merchant fleets to the ports of the Holy Land for the Eastern Fair at Jerusalem, and thus were brought in contact with Eastern art. At the commencement of the eleventh century, Pisa, the rival of Venice and Genoa, was the great commercial and naval power in the Mediterranean, and took the lead in the wars against the infidels, defeating the Saracens in A.D. 1025, 1030, and 1089 at Tunis. The Pisans were defeated by the Genoese in 1284, which led to their decline. The rise of Florence dates from 1125, when, owing to the destruction of Fiesole, the inhabitants of this latter city moved there, and in the following century its growing commerce caused it to rival Pisa.

Lucca was an important city at this period, being also a republic, and its architecture was influenced by that of Pisa. It was rent by the feuds of the two parties, the Guelphs and Ghibellines, the former supporting the power of the Popes and the latter that of the Emperors.

2. ARCHITECTURAL CHARACTER.

ITALIAN (CENTRAL) ROMANESQUE.

New ideas rarely found. Constructive boldness not sought after, less departure being made from the ancient Basilican type. The Italians have always possessed a greater capacity for beauty in detail, than for developing a bold and novel construction into a complete style.

NORTHERN EUROPEAN ROMANESQUE.

The principal aim is perfection in the construction of vaulting, which influenced the whole design—as in Normandy and the Rhine provinces, where vaulting was now being developed. Such treatment caused the introduction of many new constructive ideas.

The Byzantine influence was strong, especially in several districts, as Venice, Ravenna, and Pisa, which latter city in particular possesses a distinct style of its own.

3. EXAMPLES.

Pisa Cathedral (A.D. 1063-1092) is a fine example of the style (Nos. 91 and 92), the interior, with rows of columns and flat ceiling recalling the Early Christian Basilican church, but the transepts with segmental apse at each end were an advance on the Basilican plan. Over the crossing or intersection of nave and transepts is an elliptical dome of later date. Externally, blind arcades, built in stripes of red and white marble, ornament the façades, which also have small open arcades, one above the other, producing a fine impression (No. 91).

The building depends for its artistic effect upon the beauty and interest of its ornamental features rather than the promise of logical development into a new style which a northern example possesses.

The **Campanile** (Bell Tower), **Pisa** (A.D. 1172), is a circular structure 52 feet in diameter, ornamented with eight stories of arcades (No. 91). During its erection the foundations gave way, thus causing the tower to lean about 11 feet from the vertical.

The **Baptistery, Pisa** (Nos. 70 G and 91), designed by Diotisalvi in A.D. 1153, is circular, 129 feet in diameter, with encircling aisle in two stories. Built of marble, it is surrounded externally on the lower story by half columns, connected by semicircular arches, above which is an open arcade in two heights, supported on small detached shafts. It was not completed till A.D. 1278, and has Gothic additions of the fourteenth century, in consequence of which it is not easy to ascertain what the original external design really was. The structure is crowned by an outer hemispherical dome, through which penetrates a conical dome 60 feet in diameter over the central space, and supported on four piers and eight columns. Thus, if there were another internal hemispherical cupola, it would resemble the constructive scheme of S. Paul, London (No. 253 B). This Baptistery bears remarkable similarity to the church of S. Donato (ninth century) at Zara, in Dalmatia, which, however, has a space only 30 feet in diameter.

S. Michele, Lucca (A.D. 1188, façade 1288), and **S. Martino, Lucca** (A.D. 1060-1070, façade 1204), bear considerable similarity to the architecture of Pisa, the reason being that Lucca belonged to that city when most of its churches were erected.

Pistoia Cathedral (twelfth century A.D.), resembles these churches.

Rome.—In the Romanesque period, *i.e.*, from 600-1200, while the architecture of the rest of Europe was slowly developing towards the Gothic style, that of Rome was still composed of Classic columns and other features taken from ancient buildings.

During this period a series of towers were also erected in the imperial city. The origin of these is not clear, as the custom of

bell ringing was not then in existence, but they may be regarded as prototypes of the mediæval towers and spires.

The **Cloisters of S. John Lateran, Rome** (A.D. 1234), and of **S. Paul beyond the walls, Rome** (A.D. 1241) (No. 98 B) are of extreme interest. They are formed in square bays, the vault arches inclosing the arcades in groups of five or more openings. The special feature of the cloisters consists of the small twisted columns inlaid with glass mosaic in patterns of great beauty, and forming an evidence of the patient skill of the craftsman.

S. Miniato, Florence (No. 93), is a leading example of the Central Italian style. The length of the church is divided into three main compartments, and the raised eastern portion, under which is a crypt, is open to the nave. This division of the church by piers seems a prelude to the idea of vaulting in compartments, and is an evident departure from the basilican type of long unbroken ranges of columns or arcades. The marble panelling, and banding in black and white marble of the exterior and interior, were carried to a further extent in the Gothic period. Very notable is the open timber roof with its decoration, recently restored, in bright coloring of gold, green, blue and red.

For the Comparative table of Italian Romanesque, see page 242.

NORTH ITALY.

I. INFLUENCES.

i. **Geographical.**—Milan, the capital of Lombardy, always had a high degree of prosperity, on account of its favourable situation in the centre of that state, and its proximity to several of the Alpine passes. The city is surrounded by rich plains, and the cultivation of the mulberry (for the silkworm), and the vine, adds to the general prosperity of the district.

Ravenna and Venice, as trade connecting links with the Eastern Empire, reflect the culture and architectural forms derived therefrom.

ii. **Geological.**—Brick is the great building material of the plains of Lombardy, and the local architecture shows the influence of this material.

iii. **Climate.**—North Italy has a climate resembling that of Central Europe, *i.e.*, a climate of extremes. Milan is near enough to the Alps to experience cold in winter, while in summer the heat is often excessive.

iv. **Religion.**—At the end of the fourth century, Theodosius, the great emperor, had been forced to do penance on account of a massacre in Thessalonica, S. Ambrose, Bishop of Milan (374-398), closing the doors of the Church against him. This is an instance

ITALIAN (CENTRAL) ROMANESQUE.



of the great power the Church had acquired. S. Ambrose's fame and influence maintained the Ambrosian rite, which differed in some points of ritual, such as side altars not being used (*cf.* Milan Cathedral, page 408).

v. Social and Political.—The devastating wars in the North Italian plains led to the gradual rise of the Venetian state, the first form of government being republican, but an oligarchy in which a Duke, or Doge, was invested with supreme authority gradually grew up. Italy itself consisted of a number of separate cities which were independent commonwealths.

vi. Historical.—Venice from the first kept up a close alliance with Constantinople, by means of which both the naval importance and commerce of the little state continually increased, especially after the eleventh century, by which time commercial relations had extended to the Black Sea and the coast of the Mediterranean, including Dalmatia, Croatia, and Istria. The barbarians who occupied the valleys of the Rhine and Po pursued a similar development in spite of the intervening Alps, Milan being as much German as Italian. In Italy, the old Roman population eventually caused barbarian influence to wane, but until this had come to pass little building was done. The eleventh and twelfth centuries were the great building epochs in Lombardy.

2. ARCHITECTURAL CHARACTER.

NORTH ITALIAN ROMANESQUE.

Arcades restricted to top of gables and apses. The character is less refined owing to the use of stone and brick rather than marble. Wide, flat, and severe façades are typical, covering the whole church, without marking in any way the difference of nave and aisles. A rose window (No. 96) and a porch resting on lions are often the chief relief. Details show a breaking away from Classic precedent. In sculpture, hunting and other scenes reflecting the life of the northern invaders are frequent, and in these a grotesque element is prominent.

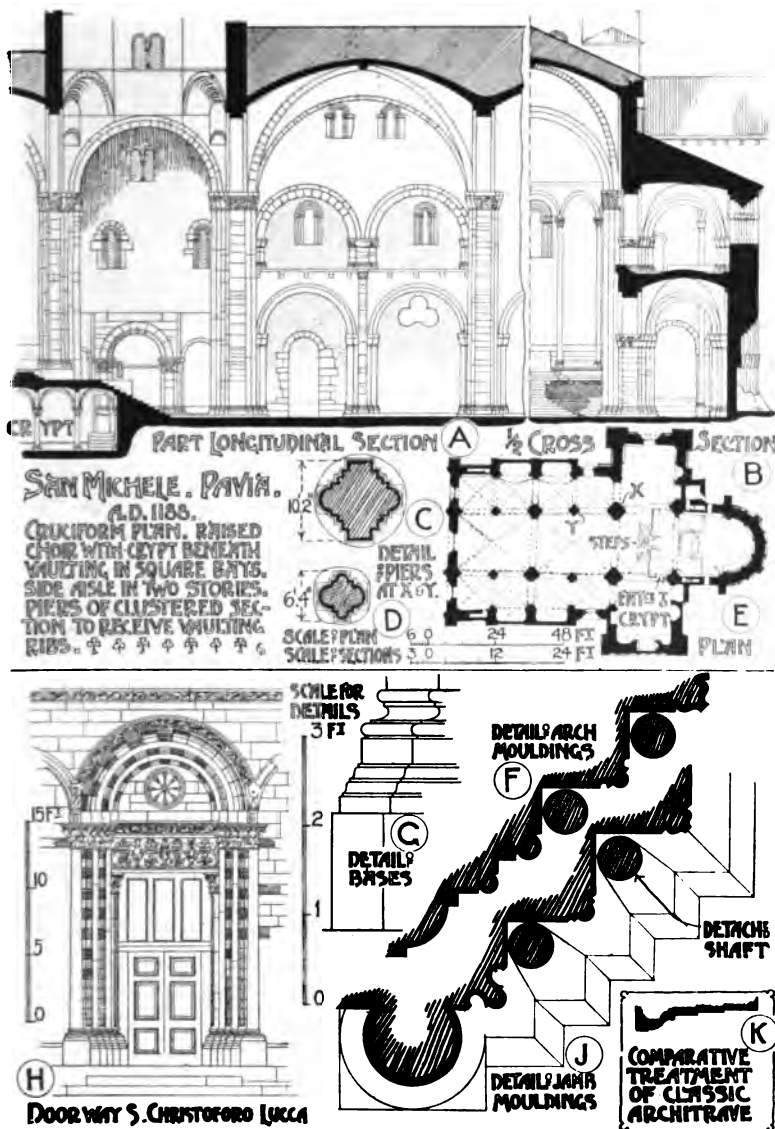
The churches were of the Basilican type, and were nearly all vaulted and roofed. Side aisles are often in two stories, the clerestory is omitted, the walls between the side chapels forming buttresses.

CENTRAL ITALIAN ROMANESQUE.

Arcades in several stories were employed as an ornament to the façades (No. 91). Marble facing was carried to such an extent as to form a style in that material. The Basilican type was closely adhered to, and beauty and delicacy of detail were preferred to the invention of fresh architectural forms produced by a new system of construction. Detail much affected by Classic remains and traditions, which resulted in the production of carving and ornament of great refinement. At Pisa ancient sarcophagi richly sculptured with figures existed, by whose study the Pisani were influenced.

The churches were mostly roofed with plain open-timbered roofs, the members of which were ornamented with bright coloring.

ITALIAN ROMANESQUE EXAMPLES.



ITALIAN (CENTRAL) ROMANESQUE.



95.

S. MICHELE, PAVIA.

3. EXAMPLES.

S. Antonio, Piacenza (A.D. 1122), **S. Ambrogio, Milan** (A.D. 1140), and **S. Michele, Pavia** (A.D. 1188), are good examples. The latter (Nos. 94 and 95) is vaulted in square bays, with side aisles in two stories, and piers of clustered section.

S. Zenone, Verona (A.D. 1139) (No. 96), is an important example, having, under the slope of the gable, arcaded corbels, which are characteristic of the work in this district; also the great western rose (wheel) window, and the projecting porch to the main doorway, with columns supporting arches, and resting on the backs of crouching lions (No. 98 G).

The origin of the arcaded galleries in many of the more important churches of the period (Nos. 91 and 95), is interesting, as illustrating how such architectural features have had, originally, a constructive meaning. Thus, when a wooden roof was placed over a circular vault, the external walls did not need to be continued solid above the springing of the vault, as the ends of the rafters exerted little thrust; hence this portion was arcaded, the arches being connected with the extrados of the vault, giving a deep shadow in an appropriate position (Nos. 104 and 105 B). This arcading, from being used merely in this position, came to be employed, in every possible part of the building, as a decorative feature, so that it even entirely covered the western façade. Similarly in the later Gothic periods in England, the battlemented parapet, primarily of use for defence at the top of the building, was employed as a decorative feature on window transoms and other positions.

The **Palazzi Farsetti and Loredan**, and the **Fondaco dei Turchi**, a great warehouse on the Grand Canal, used in the Eastern trade, are well-known examples at Venice, in which are found the characteristic cubiform capital, carrying semicircular arches which are often stilted.

The **Campanili**, or bell towers, are important features of the period. They were not joined structurally with the church to which they belonged, as in England, France, and Germany, but were placed at some little distance, and sometimes connected with the main building by cloisters (No. 96).

These campanili occur in most of the North Italian towns, and in many cases are rather civic monuments than integral portions of the churches near which they are situated, as that of S. Mark, Venice. In these cases they were erected as symbols of power, or commemorative monuments, being similar in purpose to the civic towers of Belgium (page 390).

In plan they are always square, and have no projecting buttresses, as in countries north of the Alps, being treated as plainly as possible, without breaks, and with only sufficient windows to

ITALIAN (NORTH) ROMANESQUE.



96.

S. ZENONE, VERONA.
Showing detached Campanile.

admit light to the internal staircase, or sloping way; the windows increase in number from one in the lowest story to five or more in the uppermost story, which is thus practically an open loggia, and the whole is generally crowned with a pyramidal shaped roof, as is the Campanile of S. Zenone, Verona, which is typical (No. 96).

For comparative table of Italian Romanesque, see page 242.

SOUTHERN ITALY AND SICILY.

"Therein be neither stones nor sticks,
Neither red nor white bricks;
But for cubits five or six,
There is most goodly sardonix,
And amber laid in rows."

I. INFLUENCES.

i. Geographical.—Being situated centrally in the Mediterranean sea, and being of triangular form, Sicily presents one side to Greece, another to Italy, and the third to North Africa, and its history is a record of the successive influences of the powers to whom these countries belonged.

ii. Geological.—The deposits of sulphur contributed to the wealth and prosperity of the island, while the mountains afforded an abundant supply of a calcareous and shelly limestone, which influenced its architectural character.

iii. Climate.—The climate of South Italy and Sicily is almost sub-tropical, for palms grow in the open air, and there are celebrated orange and lemon groves near Palermo. On the south-eastern coast of Italy the towns have the general characteristics of Oriental cities, the buildings having flat roofs and other Eastern features.

iv. Religion.—In Sicily, owing to Mahometan influence, the façades were ornamented with intricate geometrical patterns, which were invented because the Mahometan religion forbade the representation of the human figure (page 654).

v. Social and Political.—The Mahometans introduced into Sicily valuable commercial products, such as grain and cotton. Their civilization was, however, considerably aided by the previous Byzantine influences. Southern Italy has always maintained a close connection with Sicily, and has yet to be fully explored for traces of its architectural development.

vi. Historical.—In A.D. 827 the Mahometans landed in Sicily, and gradually overran the whole island, and the latter part of the tenth century was the most prosperous period of their sway. Sanguinary struggles amongst certain sects led to the insurrection of several cities, and hastened the downfall of the Mahometan dynasty. From 1061-1090 the Normans, under Robert and

ITALIAN (SOUTH) ROMANESQUE.



MONREALE CATHEDRAL, SICILY.

Roger de Hauteville, conquered the island, and a descendant of the latter was crowned at Palermo, 1130. During this period Sicily prospered, and her fleet defeated the Arabs and Greeks, but civil wars as to the right of succession led to the island passing in 1268 to Louis of Anjou.

2. ARCHITECTURAL CHARACTER.

The change from the *Byzantine* to the *Mahometan* dominion, and from the latter to the *Norman* in the eleventh century is traceable. Byzantine influence is shown in the plans of certain churches, as in the Church of the Martorana at Palermo, where a square space is covered by a dome supported on four free-standing columns.

Mahometan influence is evident, particularly in the decorative parts of churches, as mentioned above.

Architecture developed considerably under the Norman rule by the erection of cathedrals, and a school of mosaic was maintained in the Royal Palace during this period.

The churches have either wooden roofs, or a Byzantine dome, but are hardly ever vaulted. Dark and light stone was used in courses externally, and rich mosaics and colored marbles were employed as a facing internally. The architectural features of the interiors, of which Monreale Cathedral (No. 97) has typical examples, were subordinate to the mosaic decorations which clothe the walls.

3. EXAMPLES.

Monreale Cathedral (begun 1174, No. 97), on the high ground to the south-west of Palermo, illustrates mixed Byzantine and Mahometan influences. In plan it resembles a Roman basilica, with apses at the eastern end of nave and aisles, the choir being raised above the nave. The nave columns have well carved capitals of Byzantine form, supporting pointed arches, which are square in section, and not in recessed planes as in northern work. Pointed windows without tracery occur in the aisles. The walls are ornamented with mosaics in color, representing scenes from biblical history, surrounded by arabesque borders. A dado, about 12 feet high, of slabs of white marble, is bordered by inlaid patterns in colored porphyries. The open timber roofs, intricate in design, are decorated in color in the Mahometan style. The interior is solemn and grand, the decoration being marked by severity, and by great richness in the material employed. The low, oblong, crowning lantern, the early bronze doors, and rich cloisters, are notable.

The Capella Palatina, Palermo (1132) (in the Royal Palace),

was the model for Monreale Cathedral, and though of small size, is unrivalled for richness of the effect of the mosaics. It has a richly treated ceiling of stalactite forms.

S. Giovanni degli Eremiti (1132) and the **Martorana Church** (1113-1143) are other examples at Palermo which show the blending of Saracenic and Byzantine ideas.

S. Nicolo, Bari (1197), is a good and typical example of the churches of Southern Italy which are small in comparison with their northern contemporaries. The entrance front is always distinguished by a projecting porch, with the columns resting on lions' backs, supporting a projecting roof, above which is the characteristic wheel-window. The detail of these buildings is always refined and graceful, which may be due to some extent to the Greek descent of the inhabitants of this part of Italy. The crypts are a special feature, that at Otranto being noteworthy for the numerous points of support employed to carry the choir.

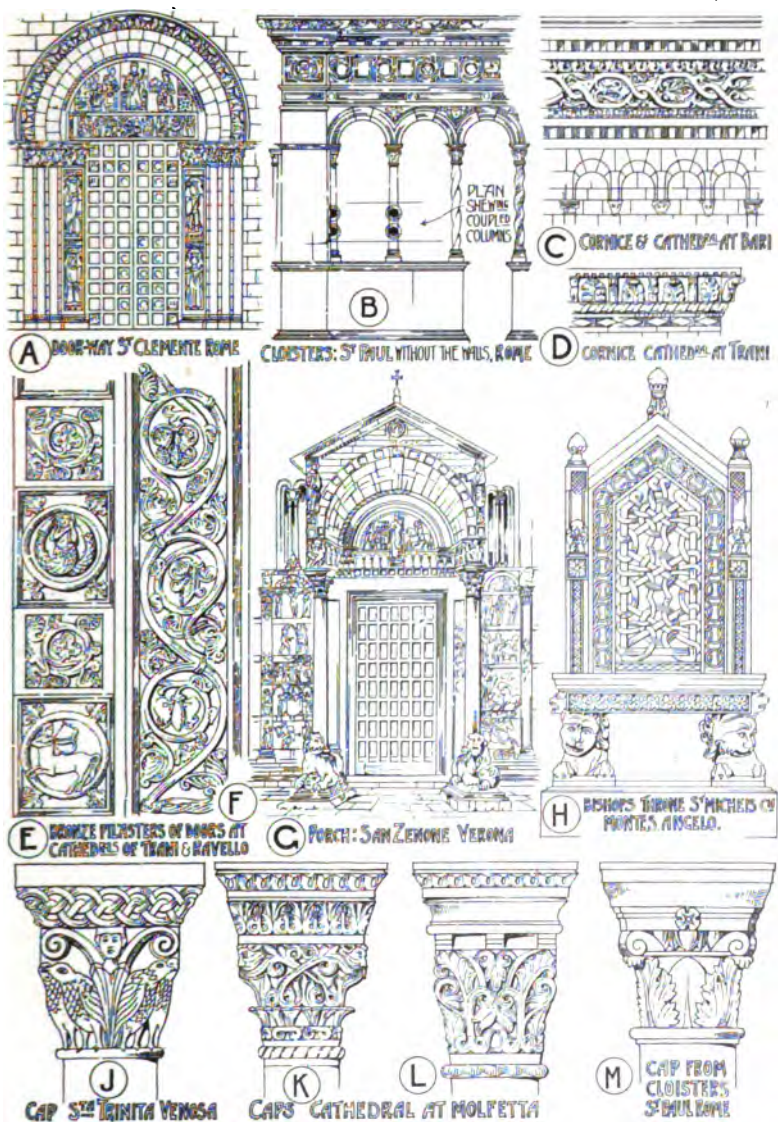
4. COMPARATIVE.

CENTRAL, NORTH, AND SOUTH.

A. Plans.—The plans of most of the churches were substantially the same as the basilicas, more especially in Central Italy; in the North the churches are mostly vaulted, modifications being introduced on the lines of German work; in the South, the low lanterns at the crossing, oblong in plan, are marked features, as at Monreale Cathedral (No. 97). The choir was occasionally raised to admit of a crypt beneath, reached by steps from the nave. A number of circular examples were built mainly as baptisteries, that at Novara being connected to the cathedral by an atrium. There is a fine atrium at S. Ambrogio, Milan. In the North the open arcades of the apses seen in conjunction with the usual arcaded octagonal lantern at the crossing, constitute the charm of the style. Projecting porches were preferred to recessed doorways, and are bold open-arched structures, often of two stories, resting on isolated columns, and placed on huge semi-grotesque lions, having a symbolic character. Towers, as at Piacenza and S. Zenone, Verona (No. 96), are detached, being straight shafts without buttresses or spires, which, when occurring, can be traced to German influence.

B. Walls.—The flat blind arcades of the northern style were developed by the Pisan (Central) architects in their galleried façades. The west front, including the aisles, was carried up to a flat gable, with arcading following the rake, and other arcades carried across in bands. The Northern façades are flatter, and sometimes have a large circular window to light the nave. In the South this feature is highly elaborated with wheel tracery, as

ITALIAN ROMANESQUE ORNAMENT.



in the churches at Palermo. Flank walls are occasionally decorated by flat pilaster strips, connected horizontally by small arches, springing from corbels (No. 98 c).

fig. 1
Monreale
c. Openings.—In consequence of the bright climate the openings are small (No. 98 A), and opaque decoration was preferred to translucent. Window tracery was not developed. The wheel windows (No. 96) just described are only rudimentary in pattern, attention being chiefly bestowed upon their decoration, as in the rich carving of the Palermo examples.

d. Roofs.—Where round-arched cross vaulting, or simple barrel vaults, were not employed, the timber roofs of the basilican style often effectively decorated with color were used. In the southern examples, domes rather than vaults were attempted, but timber roofs are the rule in Palermo and Monreale (No. 97), and, owing to Mahometan influence, great richness in timber ceilings was attained.

The nave roofs of Italian churches continued to be constructed of wood with flat ceilings till the thirteenth century. Plain groined vaults of small span were common and divided into compartments by flat bands, a practice which was continued in the Gothic period.

e. Columns.—Piers with half shafts were employed rather than columns, especially in the North, where vaulting was more in use, but coupled and grouped shafts were seldom properly developed in relation to the vaulting ribs. Buttressing was obtained by means of the division walls between an outer range of chapels, more often than not unmarked on the exterior. In Central Italy, as at Toscanella, rude Corinthian columns carry a round-arched arcade, above which the plain walls are pierced, by the small arched openings of the clerestory, while the roof is of the simple basilican type. No. 98 j—m, show typical capitals.

f. Mouldings.—Flat bands are characteristic of the Northern style. Strings were formed by small arches, connecting one pilaster strip to another. Rude imitations of old Classical detail are met with. Southern work is far superior in detail, often possessing good outline, grace, and elegance. Richness and elaboration were attempted in the doorways (No. 94 n, j).

g. Ornament (No. 98).—Roughly carved grotesques of men and animals (No. 98 e, f), vigorous hunting scenes, and incidents of daily life are found in Northern sculpture. In Central Italy greater elegance is displayed, and Classic models were copied. The rows of apostles on the lintels of the doorways, as at Pistoia, are similar in treatment to Byzantine ivories.

In Southern examples, bronze doors are a feature, as at Monreale Cathedral. Elaborate decoration in mosaic exists as in the Palermo churches and elsewhere (No. 98 n), and the use of color was the main object in the design of the interiors.

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FRENCH ROMANESQUE.

"How reverend is the face of this tall pile,
Whose ancient pillars rear their marble heads
To bear aloft its arched and ponderous roof,
By its own weight made steadfast and immovable
Looking tranquillity. It strikes an awe
And terror on the aching sight."—CONGREVE.

I. INFLUENCES.

i. **Geographical.**—France is practically on the high road between the south and north of Europe, and the relative position of each district influenced the various prevailing types of architecture. When Rome was a great power it was by way of Provence and the Rhone valley that civilization spread; hence the strong classical element which is there prevalent. The trade with Venice and the East introduced to the district of Périgueux a version of the Byzantine style in stone.

ii. **Geological.**—France is exceedingly rich in building materials, especially stone, of which most of the towns are built. The soft, fine-grained stone of Caen, used throughout Normandy, was also exported to England. In the volcanic district of Auvergne walling was executed in a curious inlay of colored material.

iii. **Climate.**—In France there are three climates—(a.) the north resembles that of the south of England; (b.) the west on the Atlantic coasts is warmer, owing to the Gulf Stream and warm S.W. winds; (c.) the south, on the Mediterranean, with a landscape almost African in its aspect, is sub-tropical.

iv. **Religion.**—Christianity, when introduced, took a strong hold in the Rhone Valley, Lyons contributing martyrs to the cause. In this district the most interesting event was the rise of the Cistercians (page 219), the severity of whose rules as to church building, caused a reaction from the decorative character of the later Romanesque, as in the façades of S. Gilles, and of S. Trophime, Arles. Attention was then concentrated upon

the means of producing grand and severe effects, and the change to the pointed style was promoted, by the effort to solve the problems of vaulting.

v. Social and Political.—Hugh Capet ascended the Frankish throne towards the close of the tenth century, Paris being made the capital of the kingdom. At this period the greater part of the country was held by independent lords, and the authority of the king extended little beyond Paris and Orleans. Lawlessness and bloodshed were rife throughout the century, hence architectural progress was impossible until a more settled state of society was established.

vi. Historical.—On the death of Charlemagne, Northern France was invaded by the Northmen, from whom Normandy was named, and their ruler Rollo was the ancestor of the Norman kings of England. The conquest of England in 1066 marked the transference of the most vigorous of the Normans to England, Normandy becoming an English province until the time of King John. The hold, however, which they retained on their possessions in France was the cause of continual invasions and wars in the two countries, until the complete fusion of races in both was marked by the loss of the English possessions in France.

2. ARCHITECTURAL CHARACTER.

The southern style is remarkable for its rich decorative façades and graceful cloisters, the buildings of Provence being a new version of old Roman features, which seem to have acquired a fresh significance.

In Aquitania and Anjou the vast interiors in one span, supported by the massive walls of the recessed chapels, are impressive, and seem to revive the great halls of the Roman *Thermæ*. In the north the style is the promising commencement of a new epoch, having the first tentative essays of a new system. The interiors were close set with pier and pillar, and heavily roofed with ponderous arching, forming a link to the marvellous structures of the next three centuries, where matter is lost in the emotions expressed.

The plain thick walls, usually with flat external buttresses in the north or internal buttresses in the south, emphasized the richness of the west fronts of the churches in both districts.

The development of vaulting, which was different in the north and south (page 223), made much progress, especially along the Loire Valley. In the south, naves were covered with barrel vaults, whose thrust was resisted by half barrel vaults, over two-storied aisles (No. 100 B), thus suppressing the clerestory, as at *Nôte Dame du Port*, Clermont-Ferrand.

In the north, naves were covered by groined vaults, often in

square compartments and covered with sexpartite vaulting, the groined ribs being constructed independently and supporting the infilling or "severies."

3. EXAMPLES.

France exhibits several varieties of the Romanesque style, in which different peculiarities are traceable, and for this reason it may be divided into southern and northern provinces, the main dividing line being the Loire.

The influence of Roman remains was naturally greatest in the parts where they more particularly occur, as at Nîmes, Arles, and Orange, and other places in the Rhone Valley.

The South of France may be roughly divided into the provinces of Aquitania, Auvergne, Provence, Anjou and Burgundy.

Aquitania has two distinct styles, the first having round-arched tunnel-vaults, and the second having domes spheroidal in shape, elongated upwards and supported on pointed arches, indicating an eastern influence. *S. Sernin, Toulouse*, is an example of the first type. *S. Front, Périgueux* (A.D. 1120) (No. 84), an example of the second type, is due to a large trade with Byzantium. It is a Greek cross on plan, and closely resembles *S. Mark, Venice* (page 208). The illustration (No. 84 B) shows the arches supporting the domes as pointed, but they have latterly been made semicircular. Attached to the church is a magnificent campanile in stone, consisting of a square shaft, surmounted by a circular ring of columns, carrying a conical dome. *S. Front* acted as a prototype of churches with cupolas in France.

Angoulême Cathedral (No. 100 E, F, G) is of the second type, but has a long aisleless nave with transepts provided with lateral chapels and an apsidal choir with four chapels, forming a Latin cross on plan. The nave is covered with four stone domes, that over the crossing being carried above the roof and having a stone lantern. Both transepts were originally crowned with towers, but the southern one was destroyed in 1568.

Cahors Cathedral (A.D. 1050-1100) is an imitation of *S. Irene* at Constantinople (page 204).

Auvergne being a volcanic district, the geological influence is frequently apparent, the buildings having a local character imparted to them by the inlaid decoration formed of different colored lavas, as at *Nôtre Dame du Port, Clermont-Ferrand*, and the *Church at Issoire*.

Provence has numerous remains of the eleventh and twelfth centuries, in many of which pointed tunnel-vaults were used, all showing Classical influence, as at *Nôtre Dame, Avignon*. The portals of *S. Trophime, Arles* (No. 102), and the Church at *S. Gilles*, exhibit great richness of effect and beauty of detail. The cloisters, consisting of columns, used in couples in the depth

of the wall, and carrying semicircular arches, are specially interesting. The columns have deep capitals sculptured with sharp and distinctive foliage (No. 103 D, E) and support semicircular arches, which are left entirely open, no attempt at tracery filling being made.

Anjou has many examples rich in decorative treatment, as *Notre Dame la Grande, Poitiers*. The *Abbey of Fontevault* (A.D. 1101-1119) resembled Angoulême Cathedral in its aisleless nave and general arrangement.

Burgundy was specially rich in monastic establishments which influenced the architectural treatment of the churches, many of which have been destroyed. The great *Abbey-Church of Cluny* (1089-1131) was the most famous in this province and was the longest in France, with double side aisles to the main body of the church, and a *chevêt* of five apsidal chapels. The pointed arch was employed in the arcade of the nave, which was covered with a great barrel-vault, and the aisles probably had groined vaulting.

Autun Cathedral (1090-1132) is an example of the aisleless churches which are found in various parts of France.

The *Church at Vézelay* (A.D. 1100), and that at *Vienne* are other interesting examples, the former having a groined vault instead of the longitudinal barrel-vault.

Tournus Abbey Church is an interesting example in which arches spanning the nave from pier to pier support transverse vaults, under which windows were formed in the nave walls.

The North of France comprises the provinces of Central France, with Paris as the radiating centre, and the provinces of Normandy and Brittany.

Normandy possesses many fine examples of this period owing to its prosperity and the power of the Norman dukes. These examples are of the vaulted basilican type, which was being developed towards the complete Gothic of the thirteenth century.

The city of Caen possesses a number of examples illustrating the difficulties of vaulting, which ultimately led to the introduction of the pointed arch.

The *Abbaye-aux-Hommes* (S. Etienne), *Caen* (Nos. 100-101), commenced A.D. 1066 by William the Conqueror, in expiation of having married Matilda in spite of their close relationship, is the best known example. The plan seems to have been founded on the Romanesque church of Spire (Germany). It had originally an eastern apse, but this was superseded later by the characteristic *chevêt* (No. 101). The west end is flanked by two square towers crowned by octagonal spires with angle pinnacles, this façade being a prototype of the Gothic schemes to follow. The vaulting illustrates the difficulties of spanning oblong compartments without the aid of the pointed arch. Two bays

of the nave are comprised under one vaulting compartment, which thus being approximately square, the rise of the transverse, diagonal, and wall ribs is nearly equal. This resulted in a system known as sexpartite vaulting (page 225) (Nos. 100 c, d, 112 E, F), which, however, was superseded immediately on the introduction of the pointed arch, when each compartment, whatever its shape, could be vaulted without reference to the neighbouring one, because the difference between the width of the nave and the distance longitudinally between the piers could be easily surmounted by pointed arches of different radius manipulated so as to equalize the height of the ribs.

The *Abbaye-aux-Dames (La Trinité)*, Caen (A.D. 1083) (No. 99), in which the progress of intersecting vaulting is seen, the *Church of S. Nicholas*, Caen (A.D. 1084), and the *Abbey Church of Mont S. Michel* (since restored), are notable examples.

The *Abbey of S. Denis*, near Paris, was erected by the great building abbot, Abbé Suger, in 1144, and the choir and west front still remain as left by him, although a fourteenth century nave has been wedged between them.

4. COMPARATIVE.

A. Plans.—In the *south*, internal buttresses, inclosing the outer range of chapels, were preferred, as at Vienne cathedral. Round churches are rare in this district. Towers are detached, resembling Italian Campanili. Cloisters were treated with the utmost elaboration and richness, usually having double columns with magnificent capitals which receive the round arches of the narrow bays, and were left entirely open, as glazing or tracery were not required by the climate.

In the *north*, the increasing demand for vaulted interiors modified the planning, and the vaulting ribs were provided with individual shafts, which developed the pier plans. In the setting out of the bays important changes were introduced, thus in early plans the naves were vaulted in square bays comprising two aisle bays longitudinally (No. 100), but on the introduction of the pointed arch each oblong bay of the nave formed a vaulting compartment corresponding in length to each aisle bay.

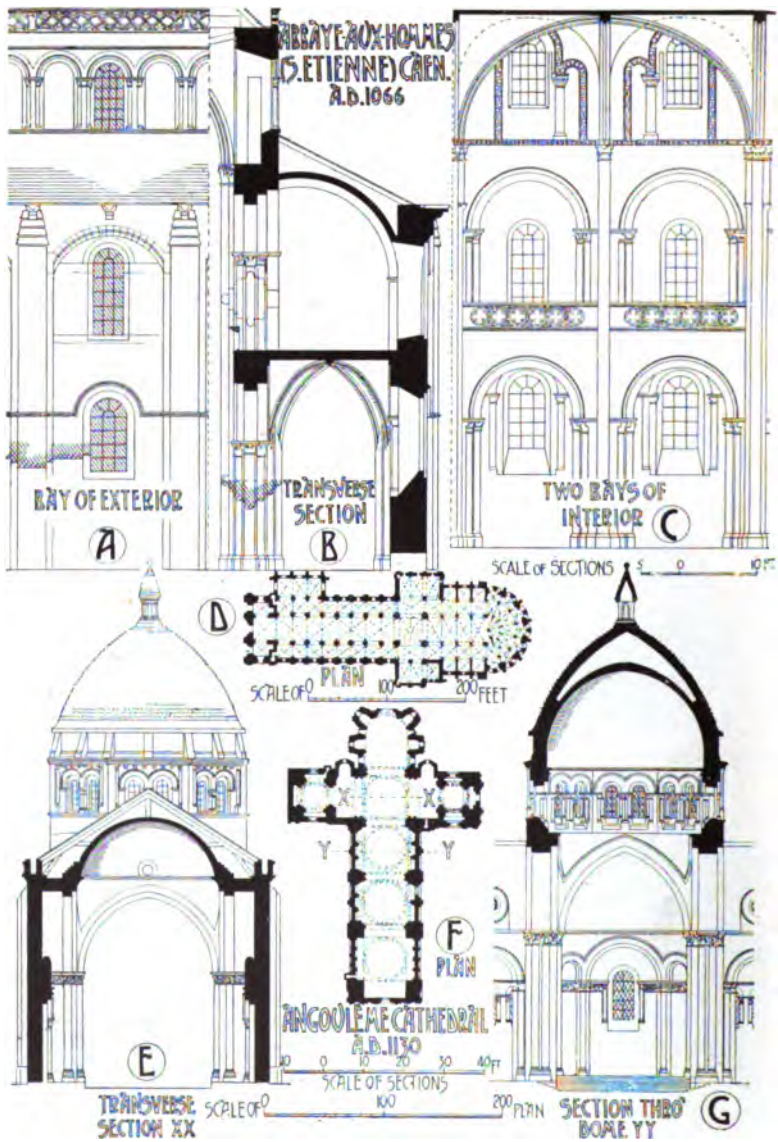
B. Walls.—Massiveness is the characteristic of all the early work. Walls were of rubble with facing stones. Elaboration was reserved for doorways in the arcaded lower portion of the façades, which are often models of simplicity and richness. Buttresses are often mere strips of slight projection (No. 99), and the façades were arranged in stories, with window lights in pairs or groups. Flying buttresses, admitting of high clerestories with windows lighting the nave, were introduced between A.D. 1150–1200. The towers are mostly square with pyramidal roofs (Nos. 99 and 101).

FRENCH (NORTH) ROMANESQUE.



THE ABBAYE-AUX-DAMES (LA TRINITÉ), CAEN.
West Front.

FRENCH ROMANESQUE EXAMPLES.





101. THE ABBAYE-AUX-HOMMES (S. ETIENNE), CAEN.
View of East End.

c. **Openings.**—The earlier vaulted churches have no clerestory. In the *south*, narrow openings with wide splays to admit light sufficed, while in the *north* a commencement in grouping was made, more especially in the direction of filling in the vault spandrels of the clerestory with arrangements of three and five light openings. The ante-chapels at the Church at Vézelay (1130) are generally referred to as having the earliest pointed vaults in France. Imposing western entrances are characteristic of this period.

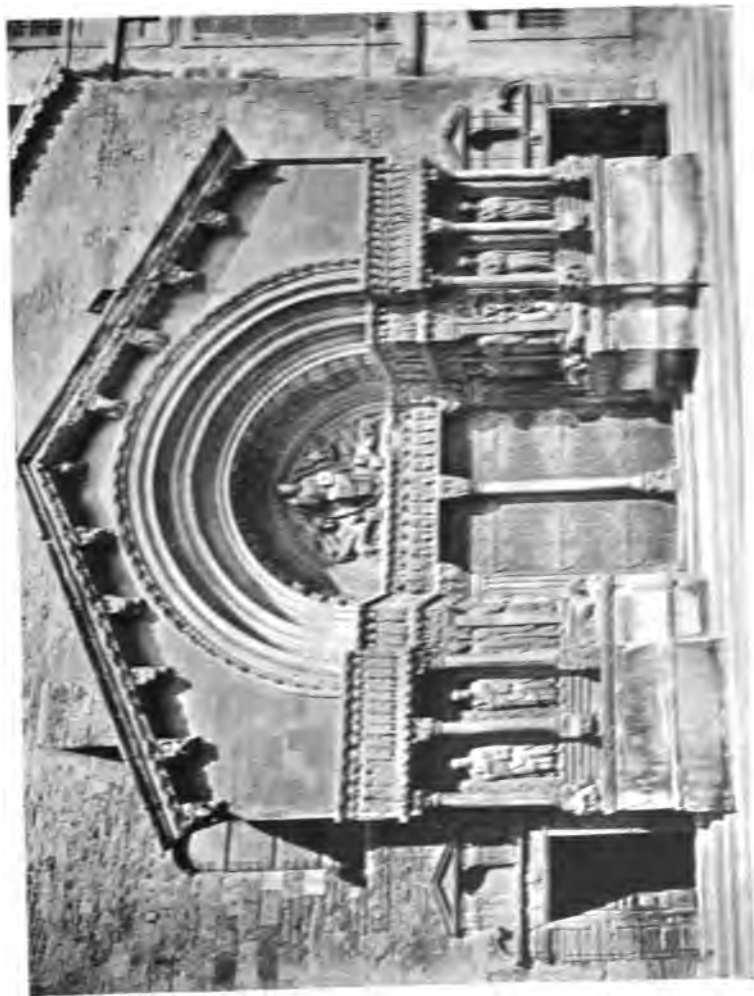
d. **Roofs.**—In the *south*, the early treatment was a tunnel vault to the nave, buttressed by half tunnels over the aisles, often in two stories, thus not admitting of a clerestory. The pointed section was sometimes used, doubtless to lessen the thrust upon the walls, and in order that the roofing slabs of stone might be carried direct upon the extrados of the vault. In the *north*, clerestories of increased height were obtained by means of the intersecting nave vaults (No. 100), with groin ribs (introduced in the twelfth century), whose thrust was taken by buttress arches concealed in the aisle roofs—a step towards the later flying buttresses. The vault in the southern examples frequently supports the roofing slabs direct, while in the northern examples above the stone vault were constructed wooden roofs, which supported the covering independent of the vault.

e. **Columns.**—In nave arcades, either square piers, recessed in planes, and having upon their faces half round shafts carried up to the vaulting ribs (No. 103 M-P), were employed, or columns, circular or octagonal, and reminiscent of Roman times, were used, and then the vaulting shafts start awkwardly from the abacus of their huge capitals (No. 103 D, E), imitated from the Corinthian order. The carrying up of the vaulting shafts emphasizes the division of the nave into bays.

f. **Mouldings.**—In the *south*, the elegance due to classic tradition contrasts with the rough axed decoration cut upon the structural features of the Norman work. In the latter, arched jambs are formed in recessed planes (No. 102), with nook shafts plainly fluted, or cut with zigzags. Capitals are cubical blocks, either plain or carved with copies of acanthus leaves from old Roman examples (No. 103). Corbel tables, supported by plain blocks or grotesque heads, form the cornices of the walls (No. 103 B, G, J).

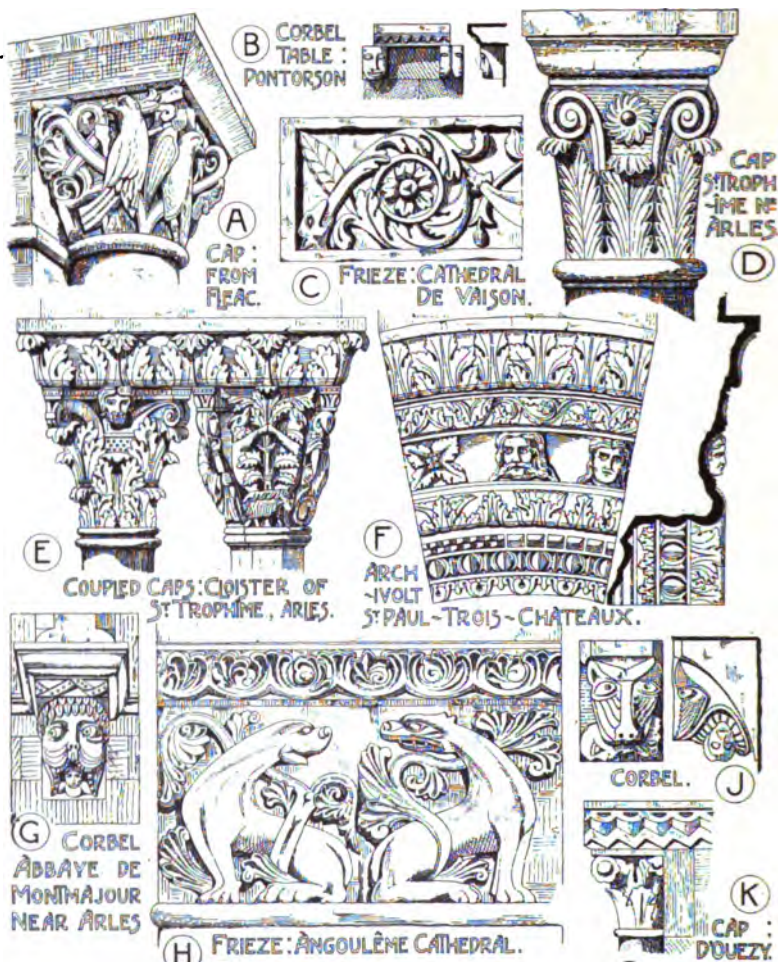
g. **Ornament.**—Painted glass was not favoured in southern examples, small, clear-glazed openings being employed to set off the opaque color decoration of the walls. Stained glass favouring large openings was gradually developed in the north. The diaper work so common in the spandrels of arches, in northern work is supposed to have arisen from the imitation, in carving, of the color pattern work, or draperies that originally occupied the

FRENCH (SOUTH) ROMANESQUE.



Porch, S. Trophime, Arles.

FRENCH ROMANESQUE ORNAMENT.



VARIOUS PLANS OF PIERS.

same positions. Figure sculpture was more frequently employed in the southern buildings. No. 102.

The West Fronts of the churches of the Charente District in Aquitania were elaborately treated with carved ornament representing foliage or figures of men and animals. On the ground story the capitals so treated, were often continued as a rich, broad frieze.

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GERMAN ROMANESQUE.

"Both the Castell and the Toure
And eke the hall and every boure,
Without peeces or joynings,
But many subtle compassings
As babeuries and pinnacles
Imageries and tabernacles
I saw, and eke full of windows
As flakes fallen in great snowes."—CHAUCER.

I. INFLUENCES.

i. **Geographical.**—On the banks of the Rhine, and in the south, cities had been established during the Roman occupation, and it was in these parts that Christianity took root, while, in the north and east, paganism still existed.

ii. **Geological.**—The existence of stone in the Rhine valley facilitated the erection in this material of churches, rendered permanent and fireproof by the early introduction of vaulting. No stone being found on the sandy plains of Northern Germany, brick was there employed, and the style of that district is consequently varied from that of the Rhine valley.

iii. **Climate.**—The average temperature of Central Germany may be said to be the same as Southern England, but with wider extremes, as the heat in the summer is ten degrees higher, and in the winter correspondingly lower, so that carriages in Berlin are converted into sledges.

iv. **Religion.**—In the early period the Germans looked much to Rome, and Charlemagne, being a strong supporter of Christianity, forced the people of Saxony to embrace that religion. The plan of a typical church of this period is peculiar in having eastern and western apses. There are also a number of important circular churches, built as tombs, or more especially as baptisteries, the conversion of the tribes giving great importance to that ceremony.

v. **Social and Political.**—Germany united under Charlemagne afterwards split up into small principalities, whereas France, originally divided into many distinct nationalities, became fused into an absolute monarchy and has remained, in

spite of all changes, the most united of continental powers. In the later portion of this period, Germany was troubled by the dissensions of the two rival parties, the Guelphs and Ghibellines, the one supporting the Church and municipal rights, and the other representing the Imperial authority, but the conflict between the two took place mainly in North Italy (page 405).

vi. Historical.—Charlemagne (A.D. 768–814), the first Frankish king who became Roman Emperor, was crowned by the Pope at Rome, and ruled over the land of the Franks, which included all Central Germany and Northern Gaul. In addition he established the Frankish dominion over Southern Gaul and Northern Italy (No. 90). In a great measure, he restored the arts and civilization to Western Europe, resulting in the erection of many important buildings in his dominions.

On Charlemagne's death in A.D. 814 this empire crumbled to pieces through internal wars, and in the unsettled state of the country, the German princes pushed themselves into prominence by demanding the right to elect their own sovereign—Conrad the First, reigning as King of Germany at the beginning of the tenth century. His successor, Otho, extending the boundary of the German Empire southwards into Lombardy, was crowned Emperor of the West at Rome, an event which shows the leading position of the Frankish emperors at the period, and was not without its influence on the architecture of these regions. The political relations of the Hohenstaufen (or Swabian) Emperors (A.D. 1138–1273) with Lombardy, is evidenced in the similarity of the architecture of the two countries. The house of Hapsburg succeeded the Hohenstaufen dynasty in 1273, when French Gothic architecture was introduced, and henceforth copied.

2. ARCHITECTURAL CHARACTER.

The style bears a strong resemblance to North Italian Romanesque, due to certain influences dealt with previously (page 234 and above).

The Rhine districts possess the most fully-developed Romanesque architecture, and the style has fewer local varieties than that of France. The plans of the churches are peculiar in having western and eastern apses, and no great western entrance as in France. The general architectural character is rich in the multiplication of circular and octagonal turrets, in conjunction with polygonal domes, and the use of arcaded galleries under the eaves. The most richly ornamented parts are the doorways and capitals, which are bold and effective in execution.

Vaulting appears to have been first adopted in the Rhenish churches some fifty years after its general adoption in France.

GERMAN ROMANESQUE.



104. CHURCH OF THE APOSTLES, COLOGNE.
View of Apse.

The Germans may claim to be the inventors of the Lombardian or North Italian Romanesque, and their round arched style lasted till about 1268.

3. EXAMPLES.

Saxony and the Rhine valley are specially rich in Romanesque examples, and few works of importance were erected elsewhere till the Gothic period. **Gernrode Abbey Church** (958-1050), and **S. Godehard, Hildesheim** (1133), are of the basilican type with triple eastern apses.

The **Monastery of S. Gall** (circa A.D. 820) in Switzerland (page 276), of which a complete plan was found in the seventeenth century, is an interesting and typical example of a German Benedictine monastery of the period. It appears to have been prepared by Eginhard, Charlemagne's architect, and consisted of a double-apse church and cloister, abbot's lodging, school, refectory, dormitory, guest-house, dispensary, infirmary, orchard, cemetery, granaries, and bakehouses.

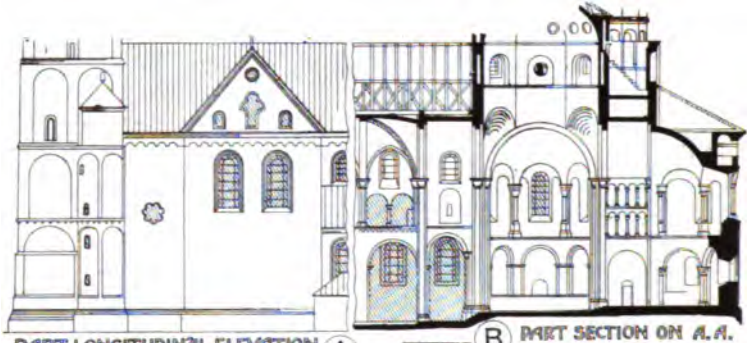
The **Church of the Apostles, Cologne** (A.D. 1220-1250) is one of a series in that city which possesses characteristic features (Nos. 104 and 105 A, B, C). In plan it consists of a broad nave, and of aisles half the width of the nave. The eastern portion has three apses, opening from three sides of the central space, crowned by a low octagonal tower, giving richness and importance to this portion of the church. The grouping externally is effective, the face of the wall being divided up by arcading, and crowned with the characteristic row of small arches under the eaves of the roof. The bold dignity of this church may be compared with the confused effect of the French *chevêt*, as S. Etienne, Caen (No. 101).

S. Maria im Capitol (ninth century), **S. Martin** (A.D. 1150-1170), and **S. Cunibert**, are other examples of triapsal churches for which the city of Cologne is famous.

Worms Cathedral (1110-1200) (Nos. 105 and 106) vies with those of **Mayence** (A.D. 1036), **Trèves** (A.D. 1047), and **Spire** (A.D. 1030), as the representative cathedral of this period. As usual (Nos. 105 D, E, F, G), the vaulting of one bay of the nave corresponds with two of the aisles, both being covered with cross vaults. Twin circular towers flank the eastern and western apses, and the crossing of the nave and transept is covered with a low octagonal tower, having a pointed roof. The entrances were placed at the side, a position which found favour in Germany as well as in England. The façades have semicircular headed windows, framed in with flat pilaster strips as buttresses.

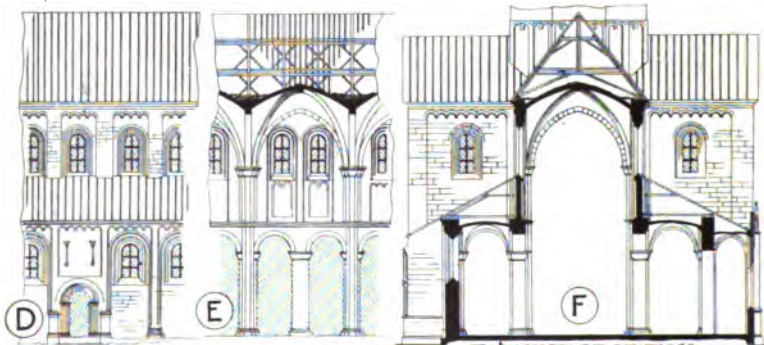
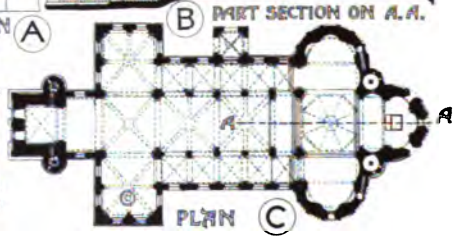
Aix-la-Chapelle Cathedral (No. 83 E, F), built A.D. 768-814 by the Emperor Charlemagne as a royal tomb-house for himself, is interesting as resembling S. Vitale, Ravenna

GERMAN ROMANESQUE EXAMPLES.



PART LONGITUDINAL ELEVATION
CHURCH OF THE APOSTLES
AT COLOGNE A.D. 1220-50.

TYPICAL EXAMPLE OF WESTERN
TRANSEPTS AND EASTERN
PORTION TRIANGULAR IN PLAN
THERE IS A SQUARE WESTERN
TOWER AND OCTAGONAL LAN-
TERN AT EASTERN END.



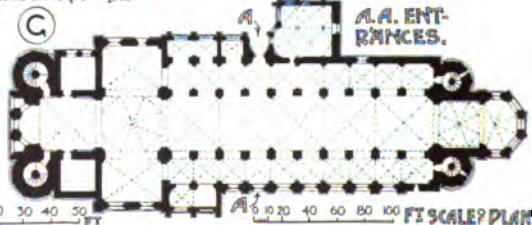
PART EXTERIOR ELEVATION PART LONGITUDINAL SECTION

TRANSVERSE SECTION

WORMS CATHEDRAL
1110 - 1200 A.D.

AN EXAMPLE WITH
EASTERN & WESTERN
APSE BOTH BEING FLANK-
ED BY TOWER TOWERS, OCT-
AGONAL LANTERNS AT
EAST AND WEST ENDS

SCALE 1/4" = 1' ELEVATION



A.A. ENT-
RANCES.

FT SCALE PLANS

GERMAN ROMANESQUE.



WORMS CATHEDRAL, FROM THE N.E.

(No. 83 c, d). A short description is given on No. 83. The building has been much altered since the time of Charlemagne, for the Gothic choir was added in 1353 to 1413, and the gables and roof of the octagon are of the thirteenth and seventeenth centuries. The chapels surrounding the structure are of the fourteenth and fifteenth centuries, and the western tower has been added in recent years. The building is of interest, historically, as the crowning place of the Western Emperors.

Laach Abbey Church (A.D. 1093-1156) is a Benedictine example built completely in this style. On either side of the western apse, which is used as a tomb-house, are the principal entrances from the western atrium, and there are three eastern apses. The vaulting-bays of the nave and aisles are of similar width.

Lubeck Cathedral (A.D. 1173), is a type of brick architecture peculiar to North Germany; but the choir and aisles were not added till A.D. 1335 (page 398).

Germany is remarkable for a series of double or two-storied churches, generally attached to castles, as at Nuremberg, Landsberg, and Steinfurt. In these it is held that the upper chapel was used by the Prince and his personal retinue, and the lower by his retainers, but in some instances the upper church would appear to have been provided in case of floods.

4. COMPARATIVE.

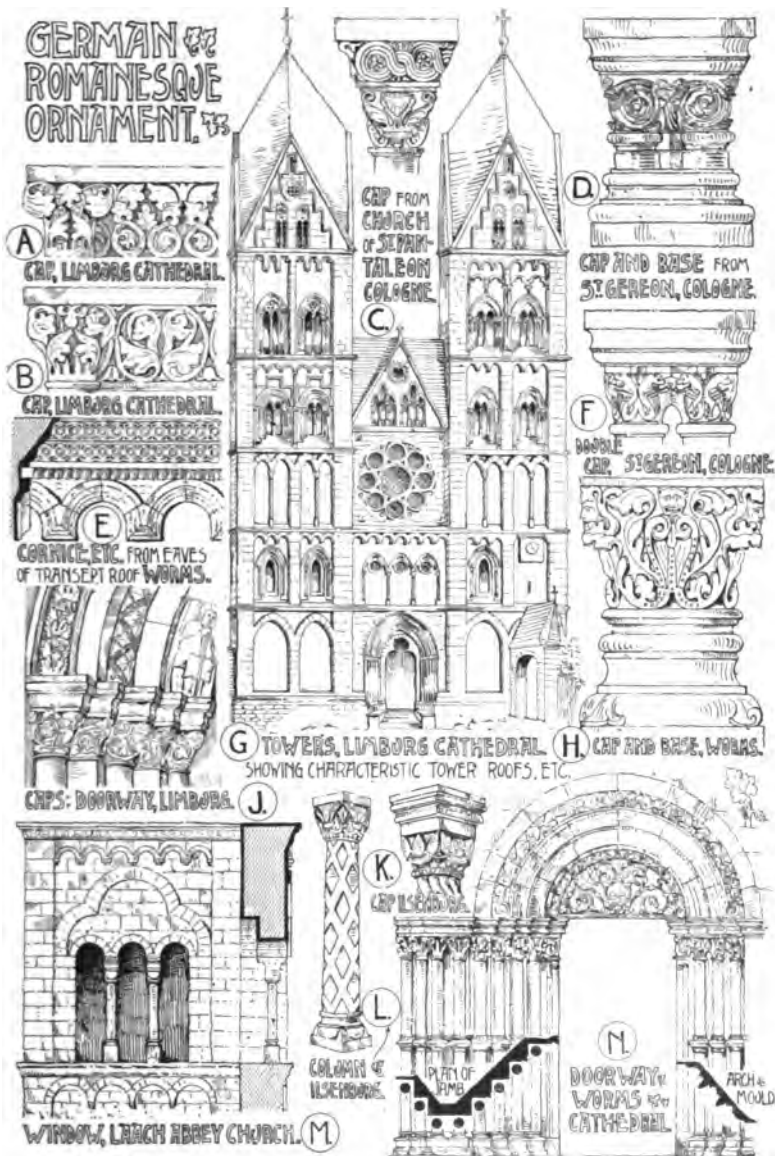
A. Plans.—The naves and aisles are vaulted in square bays, one vaulting bay of the nave being equal to two of the aisles, as in the plan of Worms Cathedral (No. 105 g), and the Church of the Apostles, Cologne (No. 105 c).

The choir is always apsidal, and often raised, as in Lombardy, to admit of crypts beneath. Western as well as eastern transepts occur, contrasting in this respect with Italian examples, and over the crossing a tower, sometimes octagonal (No. 106), is generally found. Western apses are frequent (No. 105 g), as at Trèves and the Abbey Church at Laach, and apses also occur at the ends of transepts, as in the Church of the Apostles at Cologne (No. 105 c).

Numerous towers, either square, circular, or polygonal, producing a rich and varied outline, were employed, two being usually at the east end flanking the apse, and two at the west end, connected by a gallery (Nos. 106 and 107 g). The towers rise in successive stories, and a characteristic finish consists of four gables and a steep roof, a hip rafter rising from each gable top (No. 107 g).

B. Walls.—The blank walls are cut up by flat pilaster strips, connected horizontally by ranges of small arches springing from

GERMAN ROMANESQUE ORNAMENT.



corbels (Nos. 105 D and 107 E). Owing to the smallness of scale this favourite feature may be considered as a string course or cornice.

Open arcades, the origin of which have already been dealt with (page 237), occur under the eaves of roofs, especially round the apses (Nos. 104 and 106). The churches have sometimes a triforium and always a clerestory.

c. **Openings.**—No tendency towards tracery is found. The windows are usually single, being rarely grouped (No. 106). The doorways (Nos. 105 and 107 N) are placed at the side, rarely in the west front or transept ends.

d. **Roofs.**—In the Rhine district a central semicircular barrel vault was supported by half-barrel vaults over the aisles, a system which led by degrees to complete Gothic vaulting. Timber roofs were also employed for large spans. Tower roofs, and spires of curious form, are a special feature of the style. A gable on each tower face, with high pitched intersecting roofs (No. 107 G), is common, the latter being formed by the intersections of the planes between the adjacent sides of adjoining gables forming a pyramid, being a step in the evolution of spire growth.

e. **Columns.**—The nave arcades were generally constructed of square piers, with half columns attached, and the alternation of piers and columns is a favourite German feature. The capitals (No. 107 C, D, F, H), though bold in execution, are well designed, being superior to the later Gothic examples.

f. **Mouldings** (see Walls).—These are as a rule of indifferent design, but the capitals and bases take a distinctive form, leading from Roman through Romanesque to Gothic.

g. **Ornament.**—Internally the flat plain surfaces were occasionally decorated in fresco, and the traditions and examples of the early Christian and Byzantine mosaic decorations, were carried on in color. In the north colored bricks were used, and were unsuitable for rich decoration, thus accounting for the absence of sculptured foliage.

5. REFERENCE BOOKS.

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108.

GOTHIC ARCHITECTURE IN EUROPE.

GENERAL INTRODUCTION.¹

i. INFLUENCES.

i. **Geographical.**—The nations of Western Europe had come into existence, Germany was the centre of the Western Empire and the Kingdoms of France, Italy and Spain were also becoming strong united states. Russia, Sweden and Norway had little to do with Western Europe. England had become thoroughly united under the Norman Kings. The map (No. 108) gives the general distribution of the various countries in the thirteenth century.

ii. **Geological.**—Refer to each country.

iii. **Climate.**—Refer to each country. It has been pointed out that the sun, in Northern Europe, is more suitable for Gothic than Classic Architecture, for it is a sun wheeling somewhat low on an average round the sky, and shadows are better caught by outstanding buttresses and the flying lateral members of a Gothic

¹ Before treating of the development of the style peculiar to each country, a general outline sketch is given.

façade, than by the level lines of the heavy horizontal Classic cornices, which are more effective, under the Grecian or Italian sun, which moves higher in the firmament.

Snow and inclement weather were responsible for the high pitched Gothic roof of Northern Europe.

iv. Religion.—Introductory remarks and a description of the various order of monks are given on page 218. The immense power of the Popes, which was probably at its height in the thirteenth century, was evidenced in the way they made and unmade Emperors and Kings and disposed of their dominions. The clergy, in consequence of their learning, also took a prominent part in temporal affairs, and by so doing attracted wealth and power to their orders. In Germany, many of the Abbots and Bishops were princes of the Empire, and the Archbishops of Cologne, Trèves, and Mayence were among the Electors of the Emperor. The worship of relics, and of local saints (as S. Hugh at Lincoln, S. Thomas at Canterbury, S. Swithun at Winchester), the periodical pilgrimages, the adoration of the Virgin Mary and other forms of ritual, also had their influence on the monuments. Mariolatry was responsible for the addition of lady chapels either laterally, as at Ely (No. 117 A), or at the eastern extremity, as at Salisbury (No. 117 E). The demand for chapels dedicated to particular saints, for an ambulatory to be used for processional purposes, and the foundation of chantry chapels where masses for the dead could be repeated, also affected the general plan of many buildings.

v. Social and Political.—Refer to each country. The growth of towns which developed into important cities brought about an increase of riches and the erection of magnificent buildings owing to municipal rivalries. In Italy, the country was divided into different portions belonging to the larger towns, which afterwards became principalities, whereas in Germany, towns joined together for mutual defence, amongst the most famous being those forming the Hanseatic league.

vi. Historical.—Refer to each country.

2. ARCHITECTURAL CHARACTER.

The principles and character of Gothic architecture were similar throughout Western Europe, and are indicated on No. 109. The fully-developed Gothic art of the thirteenth century was the style which had been slowly developing itself throughout Europe as a necessary sequence of Romanesque art, and is mainly recognized because of the introduction and use in door and window openings, arcades, vaulting and ornamentation of the pointed arch

which, indeed, is so characteristic as to give a suggestion of height coinciding with the aspiring tendency of the style and its connection with the religious enthusiasm of the period.

In the thirteenth, fourteenth, and fifteenth centuries the Gothic masons carried to the utmost the use of stone as a building material, heaping it up in towers that rose on open archways through the lofty roofs of the naves and transepts, and tapered away in shell-like spires embroidered in all the fretwork of lace-like tracery. They hung it aloft in ponderous vaults treated by art to seem the gossamer web of nature, scarce capable of bearing the stalactite pendants in which the fancy of the fifteenth century found its expression, and eventually pushing their practice to the furthest boundaries, they cut the granular stone to the thinness of fibrous wood or iron, and revelled in tricks of construction and marvels of workmanship.

The Gothic architects, developing still further the principles of Romanesque architecture (page 221), had to employ the materials at hand according to their nature, and to seek for those laws of elasticity and equilibrium which were substituted for those of inert stability as practised by the Greeks and Romans. This elasticity was obtained by the employment of stone laid in narrow courses with tolerably thick mortar joints.

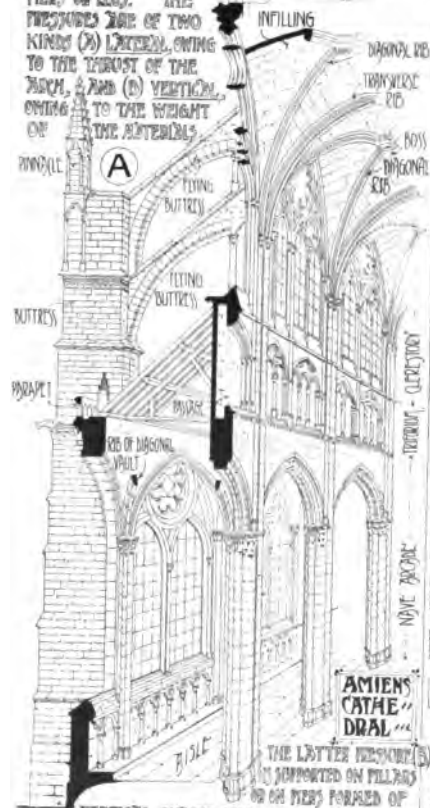
Every vertical support in Gothic architecture depended for its stability on being stayed by a buttress, which in its turn was weighted by a pinnacle; and every arch-thrust met another which counteracted it. In the case of the nave vaults, the collected pressures of the vaulting and roof were counteracted by arches, called flying buttresses, leaning against the nave wall and supported at some distance by massive piers, weighted with tall pinnacles (Nos. 109 A, 141 F, G, H, and 153 A). † Walls became mere enclosures, and the entire structure consisted of a framework of piers, buttresses, arches, and ribbed vaulting held in equilibrium by the combination of oblique forces neutralizing each other (No. 141). Even the walls themselves were occupied principally by glazed windows, divided by stone mullions, having their upper parts designed with combinations of curves of great variety. No such system of construction, it is evident, could have been developed without the employment of such a material as stone, laid in tolerably small courses with mortar joints, which gave the necessary elasticity to the various pressures.

† These principles led to the introduction of much novelty in mouldings, capitals and piers, for the numerous vaulting ribs being collected at intervals were supported on capitals of a shape formed to fit them, and these were provided with shafts, sometimes carried on corbels and sometimes continued to the ground, influencing very largely the form of the nave piers.

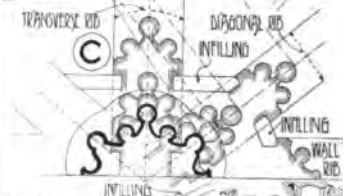
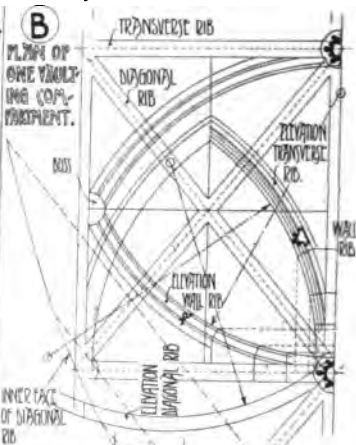
Further, the comparative scarcity of materials taught the Gothic

PRINCIPLES OF GOTHIC CONSTRUCTION.

THE CONSTRUCTIVE PRINCIPLES OF A GOTHIC CATHEDRAL, CONSIST IN THE EMPLOYMENT OF POINTED CROSS VAULTS OF STONE. THESE VAULTS ARE FORMED ON A SKELETON FRAMEWORK OF RIBS, WHOSE FUNCTION IS TO COLLECT THE PRESSURES OF THE VAULT AND CONCENTRATE THEM ON PIERS OR LEGS. THE PRESSURES ARE OF TWO KINDS (A) LATERAL, OWING TO THE THROST OF THE ARCH, AND (B) VERTICAL, OWING TO THE WEIGHT OF THE MATERIALS.



VERTICAL SHAFTS CORRESPONDING ROUGHLY TO THE VAULT RIBS. THE LATERAL PRESSURES ARE LIKEWISE COLLECTED OVER THE PIERS, AND ARE COUNTERACTED BY ARCHES, (FLYING BUTTRESSES) LEANING AGAINST THE MASSIVE WALL AND SPRINGING FROM MASSIVE BUTTRESSES WEIGHTED BY MASSIVE, PLACED SOME DISTANCE FROM THE BUILDING.



REFERENCES FOR PLANS

- BOTTOM RIB OF FIRST SPRINGER
- ▒ TOP OF SECOND SPRINGER & BOTTOM OF THIRD
- ▓ TOP OF THIRD SPRINGER & BOTTOM OF FOURTH
- TRUE SECTION OF RIB

FIRST THREE SPRINGERS DISJOINTED.

PLAN AND SETTING OUT OF GROINED VAULT WITH TRANSVERSE, DIAGONAL & WALL RIBS FROM ST. SAVOIR, SOUTHWARK.



architects to practise economy in their use, the characteristic mouldings of the Mediæval period exhibiting much less waste of material than those common in Classic times.

In the Middle Ages it was the constructional features themselves to which an attractive form was given, and in this particular, the architecture of this period stands in close relation to Greek art.

The same principle of truth was upheld, but the form had changed, and it was no longer the self-contained Greek temple, reposeful in the severity of horizontal lines, but a complex, restless structure whose aspiring tendencies found expression in vertical grouping, unity being obtained by the exact and necessary correlation between all the parts.

Although many, if not most, of the architectural features were founded primarily on structural necessity, yet others were the expression of artistic invention and of æsthetic requirements. — Form, in the best types of architecture, is not the result of caprice, but is only the expression of the structural necessities. If the column is a real support and has an expanded capital it is for the purpose of supporting a particular load; if the mouldings and ornaments have particular developments it is because they are necessary, and if the vaults are divided by ribs it is because they are so many sinews performing a necessary function. The spire was evolved from no utilitarian requirements, but was a sign of the communal spirit—and an indication of municipal prosperity, of which it formed an outward and visible expression. —

The architecture was adapted to a structure of small stones with thick mortar joints, and was a compromise between the concrete walling and the jointed stones (without mortar) of the Romans. The military organization, which had helped to mould the Roman style, was wanting in the Gothic period, stone having to be sought in various quarries from different proprietors and transported by voluntary aid, or by workmen who were forced labourers, doing as little as possible, and taken away, ever and anon, to fight in their owners' battles. As to the material at hand, the Gothic architects of Western Europe possessed stone which was strong and hard, and could be split into thin pieces, but had not at their disposal either the marble of Pentelicus or the blocks of granite which the Romans procured from Corsica, the Alps, and the East; thus they were absolutely compelled to erect considerable buildings with thin courses of stone, whereas the Greeks erected small buildings with enormous blocks of marble, conditions naturally influencing the forms of each style of architecture. Romanesque architecture consisted of walling formed of a rubble core between two faces of stonework, but at the beginning of the thirteenth century, loftier

and more extensive edifices being built, a new method was gradually evolved. In seeking to diminish the size of the piers and thickness of the walls, it was necessary for the architects of this period to find a mode of construction more homogeneous and more capable of resistance, and to avoid the expense of labour which the carrying of material of large size involved.

The walls, therefore, became of secondary importance, their place being occupied by stained glass windows, and the support of the structure was effected entirely by means of buttresses or short walls placed so as best to resist the thrust of the vaulting.

Vaulting.—The method was an extension of the Romanesque system, which was evolved from that of the Romans (page 224) and consisted of a framework of independent ribs, which were first constructed and which supported thin panels of stone. The difficulties of vaulting oblong compartments were now overcome by the introduction of the pointed arch, which was used to cover the shorter spans, while the semicircular arch was still used for some time for the diagonal ribs. The ribs became permanent centres on which the panels or “infilling” of thin stone could rest, and enabled the building to be erected all at once or in parts without disadvantage to the solidity of the edifice. As indicated on Nos. 109 and 141, the pressures of the vaults were transmitted to the angles of each compartment by the diagonal ribs. Such pressures are of two kinds: *outwards* by the nature of the arch, and *downwards* by the weight of the material, the resultant of the two being in an oblique direction. The increase of the number and variety of ribs and the consequent form of the vaults (No. 111 D) during the three centuries of Gothic architecture is one of the most fascinating studies of the style.

The invention of *painted glass* was an important factor in the development of the style, for traceried windows came to be looked upon merely as frames in which to exhibit painted transparent pictures displaying the incidents of Bible History. Neither the painted sculpture and hieroglyphics of the Egyptian temples, the colored and sculptured slabs of the Assyrian palaces, the paintings of the Greek temples, nor the mosaics and frescoes of the Byzantine and Romanesque periods produced color effects that can be compared with the brilliancy and the many-tinted splendours of the transparent walls of a Gothic cathedral. In the north and west of Europe, where painted glass was the principal mode of decoration, the walls were kept internally as flat as possible, so as to allow the windows to be seen internally in every direction, all the mechanical expedients of buttresses and pinnacles being placed externally. Further, when by the grouping of windows and the subsequent formation of mullions and tracery, the entire screen wall between

the piers came to be occupied by bright colored windows, these of necessity took the pointed form of the vault, originally adopted for constructive reasons arising from the progress of the art of vaulting, which was further influenced by the desire for lofty windows to act as frames for the glass.

3. EXAMPLES.

BUILDINGS ERECTED DURING THE MIDDLE AGES.

CATHEDRALS AND CHURCHES.

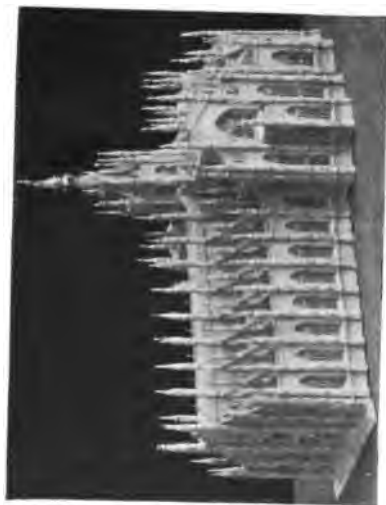
The construction of these buildings, many of which were founded in the eleventh and twelfth centuries, was carried on from generation to generation.

The place in the national life which the mediæval cathedrals occupied was an important one, and must be realized in order to understand how they were regarded. Cathedrals were erected and decorated partly as a means of popular education, and they were the history books of the period, taking the place in the social state since occupied, to a large extent, by such modern institutions as the Board School, Free Library, Museum, Picture Gallery and Concert Hall. The sculpture and the painted glass reflected the incidents of Bible History from the creation to the redemption of mankind, the sculptured forms and brilliant coloring being easily understood by the people. The virtues and vices, with their symbols, were there displayed, either in glass or statuary, along with their reward or punishment; saints and angels told of the better life, and the various handicrafts, both of peace and war, were mirrored in imperishable stone or colored glass.

Architecture then as now was also the grand chronicle of secular history, past and present, in which Kings, Nobles and Knights were represented.

The plans in all parts of Europe, as may be seen on referring to those of England (Nos. 117, 118, 119, 120 and 127), France (Nos. 155 and 159), Belgium (No. 167), Germany (Nos. 170 and 172), and Italy (Nos. 176 and 179), are generally in the form of a Latin cross, the short arms, north and south, forming the transepts. The cruciform ground plan is considered by some as a development from the early Christian basilicas, such as Old S. Peter, Rome (page 182), and by others, as evolved from the cruciform buildings erected for sepulchral purposes as early as the period of Constantine. A tower, sometimes crowned with a spire, was generally erected over the crossing or at the west end. As a rule the nave is the portion to the westward, and the choir,

GOTHIC ARCHITECTURE IN EUROPE.



A.

MILAN.



B.

EVREUX.



C.

COLOGNE.



D.

VIENNA.



E.

CHARTRES.

COMPARATIVE VIEWS OF MODELS OF CONTINENTAL CATHEDRALS.

containing the bishop and clergy, is that to the eastward of the crossing.

Each of these divisions is further divided into a central nave and side aisles, separated by columns or piers. The principal entrance, often richly ornamented, is at the west end, or by a porch on the south or north sides.

The columns or piers support arches (the nave arcade), which carry the main walls, rising above the aisle roof (Nos. 109 A and 141 G). Above this arcade are a series of small arches, opening into a dark space caused by the height of the sloping roof of the aisle; this is called the *triforium*, or "blind story." Above the triforium is a range of windows in the main wall, admitting light into the upper part of the nave; this division is called the *clerestory*, or "clear story," probably derived from the French word *clair*, light being admitted by the windows in this portion of the nave wall. The head of these windows is generally the level of the ridge of the stone vault of the nave, which is covered by a high pitched wooden roof.

The east ends or choirs, usually square-ended in England (Nos. 117, 118, 119 and 120) are generally richer than the remainder of the church, and the floor is raised above the nave level by steps.

The east ends of Norwich (No. 118 D), Gloucester (No. 118 C), Peterborough (No. 117 D), Lichfield (No. 120 J), and Canterbury (No. 118 B), all of Norman origin, were circular, while Westminster Abbey has a ring of chapels or *chevet* (No. 127).

The lady-chapel is placed beyond the choir at the extreme east end, as at Norwich, Peterborough, and Salisbury (No. 117 E), or on one side, as at Ely (No. 117 A).

The cloisters attached to so many of the English cathedrals, forming part of the original monastic buildings, were probably derived from the atrium of the Early Christian period (page 180). They are generally, but not invariably, south and west of the transept, in the warmest and most sheltered position, forming the centre of the secular affairs of the monastery, and a means of communication between different parts of the Abbey.

Such is the general distribution of the parts of a cathedral or large church, from which, naturally, there are many deviations, such as, for instance, the position and number of transepts (Nos. 117, 118, 119, 120, 155, 159, 167 and 187).

Great length, and central towers (see Chichester, Durham, Worcester, Rochester, Oxford, York, Chester, Gloucester and Wells), are features of English cathedrals; western towers also occur in many examples, as at Lichfield (with spires), Durham, Canterbury, York, Wells, Lincoln and Ripon. Compared with such long, low, and highly grouped examples, Continental cathedrals seem short, high, and often shapeless, owing to the intricacy and

profusion of their buttressing (Nos. 109, 153, 154). In churches, a single western tower is an English characteristic (No. 130).

The interior of a Gothic cathedral has been thus described :

“The tall shafts that mount in massy pride,
Their mingling branches shoot from side to side ;
Where elfin sculptors with fantastic clue
O'er the long roof their wild embroidery drew ;
When superstition, with capricious hand,
In many a maze, the wreathed window planned,
With hues romantic tinged the gorgeous pane,
To fill with holy light the wondrous fane,
To aid the builder's model, richly rude,
By no Vitruvian symmetry subdued.”

The English Cathedrals, as a general rule, owe much of their beauty to the fact that they are generally placed in a large open space called the Close, as at Canterbury, Lincoln (No. 125) and Salisbury (No. 121)—

“The ranged ramparts bright
From level meadow-bases of deep grass
Suddenly sealed the light”—

or are situated picturesquely on the banks of a river, as at Worcester, or Durham, described by Scott as,

“Grand and vast that stands above the Wear ;”

or, as Milton so descriptively has it, are

“Bosom'd high 'mid tufted trees.”

The French Cathedrals, on the other hand, are often completely surrounded by houses and shops (page 368), which in many cases were actually built against the wall of the church itself (No. 162). For comparison of English and French Cathedrals, see page 378.

MONASTERIES.

These were amongst the most important structures erected in the middle ages, and were important factors in the development of mediæval architecture. They were erected by the various religious orders already referred to (page 218).

The monks according to their several orders favoured different pursuits. The Benedictine was the chronicler and most learned of monks, and his dress was adopted by University students ; the Augustinian favoured preaching and disputations ; the Cistercian was the recluse, the friend of the poor, interested in agriculture and industrial pursuits ; the Cluniac was the student and artist ; the Carthusian the ascetic ; and the Friars the missionary preachers of the period.

A complete monastery, of which S. Gall (page 261) and Westminster Abbey (No. 127) are good examples, included

beside the church:—(a.) *A Cloister Court*, off which were placed the Chapter House, with the Sacristy between it and the church, and the dormitory adjoining the church, approached by a separate staircase. The cellarage for beer, wine and oil, was often placed under the dormitory. On the opposite side to the church were the refectory (dining hall) and kitchens, thus placed to keep away noise and smell. The lavatory was usually placed in the south cloister walk as at Westminster, Wells, Chester, Peterborough and Gloucester. (b.) *An Inner Court*, with infirmary, guest house, kitchen, servants' hall, library and scriptorium (the writing and illuminating room for making copies of books). (c.) *A Common Court*, with double gateway for carts, surrounded by granaries, bakehouses, stables, store rooms, servants' rooms, tribunal, prison, abbot's lodging, and barn. (d) *The Church Court or Close*, open to the public. (e.) Mills, workshops, gardens, orchards, and fishponds.

Monasteries answered the purpose of inns in little frequented places, as is the case to this day on the continent.

SECULAR ARCHITECTURE.

Examples of secular work, such as castles and residences of the nobles, the dwellings of the people, hospitals, and other civil and domestic work are referred to under each country.

4. COMPARATIVE.

The comparative analysis of each country is given separately, and a comparative table of the underlying differences between the Gothic and Renaissance styles is given on page 442.

5. REFERENCE BOOKS.

Lists are given with each country.

ENGLISH ARCHITECTURE.

ANGLO-SAXON, ROMANESQUE (NORMAN), AND GOTHIC.

"Diffused in every part,
Spirit divine through forms of human art,
Faith had her arch,—her arch when winds blew loud,
Into the consciousness of safety thrill'd;
And Love her towers of dread foundation, laid
Under the grave of things. Hope had her spire
Star high, and pointing still to something higher."—WORDSWORTH.

I. INFLUENCES.

i. **Geographical.**—The position of England may well be considered unique.

"England, bound in with the triumphant sea,
Whose rocky shore beats back the envious siege.

* * * * *
This fortress built by nature for herself
Against infection and the hand of war;
This happy breed of men, this little world,
This precious stone set in the silver sea,
Which serves it in the office of a wall,
Or as a moat, defensive to a house,
Against the envy of less happier lands."

SHAKESPEARE, *Richard II.*

England being an island with natural harbours, and lying opposite the rich and populous plains of Europe, owed much of her development to the intercourse effected by her ships. Isolation by the sea has had two alternating influences, for it has assisted in the development of purely national characteristics, and by giving rise to an incurable habit of travelling, has led to the importation of continental ideas in architecture.

ii. **Geological.**—The geology of the country is, in some way, responsible for the special character of the buildings in different parts of England, thus the transport of stone by sea was an

important reason for its use in some districts, but in the Fen districts, in the absence of good roads, material was conveyed on horseback.

The granites of Cornwall and Devonshire, the limestones of Portland, and the oolitic formations, such as the Bath stones, have all affected the districts in which they are found, although, of course, as transport became easier, there was a tendency for these local distinctions to disappear. Even in the Middle Ages stone was brought from a distance, Caen stone from Normandy being used in the erection of Canterbury Cathedral and other churches.

Brickwork of modern type came into general use in England about A.D. 1300, after being comparatively unused since the departure of the Romans, Little Wenham Hall (A.D. 1260), in Suffolk, being probably the earliest brick building existing in England.

During the reigns of William and Mary and Queen Anne, brickwork was largely used in house construction by Sir Christopher Wren and others. Hampton Court contains good examples of sixteenth and seventeenth century brickwork.

In chalk districts the characteristic *flint work* of Norfolk, Suffolk, and parts of the south coast, gives a special character to the architecture of these districts.

Terra-cotta was also employed, as at Layer Marney Towers, Essex (1500-1525), and in parts of Hampton Court Palace.

Where forests afforded abundant material, as in Lancashire, Cheshire and elsewhere, *half-timbered* houses were erected, chiefly during the fourteenth, fifteenth, and sixteenth centuries (Nos. 132 J, 150, and 247).

iii. Climate.—The climate is cool, temperate, mild, and moist, and is adapted for almost continuous work, during every season, but cold, damp, and high winds with much rain necessitate constant forethought in building to exclude the weather. The deep porches and small entrances of English cathedrals are in contrast with continental entrances, and are directly influenced by the climate.

iv. Religion.—The conversion to Christianity of the Kentish King Æthelbert was effected by S. Augustine in A.D. 597. By the end of the tenth century the greater part of Europe had embraced Christianity. The power of the papacy had steadily grown, and was at its height from the eleventh to the thirteenth century, during which period several popes succeeded in overruling the civil power.

In England, attempts at the assertion of national independence were continuous, but not pushed to extremes until a later date. The distinction between the regular and secular clergy was fully established, and the different orders of monks had come into

existence, their buildings exhibiting characteristic points of difference (page 218). The Crusades, indicating the religious zeal of the period, are referred to on pages 218, 283, 363.

John Wycliffe (d. 1384) asserted the freedom of religious thought, and protested against the dogmas of the papacy.

Many of the cathedrals formed part of monastic foundations (page 294), which accounts for peculiarities of plan differentiating them from French Examples.

The dissolution of the monasteries in the reign of Henry VIII. provided funds for the erection of new mansions.

v. Social and Political.—Britain, as a Roman colony, was divided into five provinces, and progress was made in agriculture, building, and mining, the Roman dress and language being adopted by the British higher classes.

The Roman settlements in this country were, many of them, provided with basilicas or halls of justice, baths, markets, temples, and villas as at Bath, Bignor in Sussex, Darenth in Kent, and Fifehead-Neville in Dorset.

The remains of this epoch consist chiefly of castles, such as those at Colchester, York, Lincoln, Richborough, and Burgh Castle (near Yarmouth).

The word "chester," as an affix, is derived from the Latin word *castra* = camp, and signifies a Roman settlement in this country, as at Winchester, Leicester, Silchester, and Chester. The excavations at Silchester revealed the remains of a very fine basilica.

The civilizing power of the Roman roads was of importance in opening out the country. The four great roads in England were:—

- (a.) *Watling Street*, London to Wroxeter, near Shrewsbury.
- (b.) *Ermine Street*, London to Lincoln *viâ* Colchester and Cambridge.
- (c.) *Fosse Way*, Cornwall to Lincoln.
- (d.) *Icknield Street*, Bury St. Edmunds to Salisbury and Southampton.

A.D. 81. Agricola built his forts from the Clyde to the Forth.

A.D. 120. Hadrian's wall built from the Tyne to the Solway.

A.D. 210. The Emperor Severus strengthened Agricola's forts.

After the departure of the Romans in A.D. 420, the remains of Roman work were largely destroyed by the barbarians who succeeded them, but the influence of their architecture continued for a considerable period.

A.D. 449–547. The arrival of the Angles and Saxons did not improve matters, as they were especially ignorant in all matters of art. We are indebted to the Venerable Bede (A.D. 731) for most of the information regarding this period, and from him is learnt that a stone church was a rarity. A.D. 650 seems to be

about the date at which stone churches were first built, and in some of these it has been suggested that the timber forms of the earlier ones were executed in stone (No. 134).

A.D. 603. See of London revived.

A.D. 604. See of Rochester founded.

A.D. 656. Monastery of Peterborough founded.

A.D. 681. Benedict Biscop flourished as a church-builder.

A.D. 871-901. King Alfred erected, or rebuilt, many of the ruined cities or monasteries, but most of these appear to have been built of wood, and covered with thatch.

A.D. 1017-1035. King Cnut founded Bury St. Edmunds monastery.

A.D. 1061. Harold's Collegiate Church at Waltham consecrated.

A.D. 1042-1066. Edward the Confessor's religious enthusiasm, and his work at Westminster Abbey (consecrated 1065).

A.D. 1066. The conquest of England by the Normans, and the building operations of Bishop Gundulf, at Rochester Castle, the Tower of London, and elsewhere, influenced the construction of strongholds, by which the invaders secured their position in the newly-conquered country.

A.D. 1174. William of Sens built the choir of Canterbury Cathedral.

The boroughs led the way in self-government, free speech, and justice; and the formation of towns, around the abbeys or castles, took place, though the process was slow and difficult.

A.D. 1154-1216. During this period the fusion of the native English and Norman settlers was effected, in order to withstand the strangers whom the Angevin kings were constantly bringing into England.

The Association of Freemasons, founded early in the thirteenth century, assisted materially in forwarding the technical progress of the new buildings.

A.D. 1215. The Magna Charta freed the Church, and remedied abuses.

A.D. 1265. Leicester's Parliament, to which burgesses were first summoned from cities and boroughs, was called.

A.D. 1265-1284. The conquest of Wales led to further development in the planning and design of castles.

A.D. 1272-1307. Edward I. abandoned his foreign dominions, and attempted to consolidate Great Britain.

The framework of modern political institutions began to develop, and peace and prosperity in commerce gave importance to a middle class.

A.D. 1362. The English language was ordered to be used in the law courts.

A.D. 1349-1381. The rise of the farmer class and free labourer,

owing to the Black Death, which swept away half the population of England.

The poet Chaucer (1340-1400) fought in the army of Edward III. against France, his employment on diplomatic services, in Italy and Flanders, exercising a marked influence on his writings.

William of Wykeham (d. 1404), one of the greatest Gothic builders, carried out a large number of building operations at Winchester, including the college and refacing of the cathedral, and many other buildings.

A.D. 1455-1471. The Wars of the Roses, between the rival Houses of York and Lancaster, distracted England at this period.

A.D. 1476. The introduction of printing by Caxton, a press being established by him in the Almonry at Westminster.

A.D. 1485. Accession of Henry VII. united the Houses of York and Lancaster, when a great impulse was given to the development of political institutions. The Lady Margaret, Countess of Richmond, as the foundress of colleges, developed education, and influenced art.

The condition of the English people, which can hardly be considered apart from the architecture which they produced, is well treated in "A Short History of the English People," by J. R. Green, LL.D.; and should be referred to by the student.

vi. Historical.

B.C. 55. Julius Cæsar's first expedition into Britain.

A.D. 43. Expedition of the Emperor Claudius into Britain.

A.D. 84. Final conquest of Britain by Agricola, the General of Domitian.

A.D. 420. The Roman troops withdrawn from Britain.

A.D. 449-547. The English (the Low Dutch tribes known as Angles, Saxons and Jutes) conquest of Britain.

A.D. 450-550. Destruction of British churches by heathen invaders.

A.D. 597-681. Augustine landed in England and the conversion to Christianity commenced.

A.D. 802-837. Egbert (a friend of Charlemagne), King of the West Saxons, gradually brought the other English kingdoms and the Welsh into subjection.

A.D. 924. King Edward received the homage of all Britain.

A.D. 1066. The conquest of England by the Normans caused a social and political revolution, the manners and government of the English being transformed, and the military organization of feudalism introduced. French traders at the same time came to reside in London and the large towns, thus bringing over Continental ideas.

A.D. 1095-1254. The Crusades, which brought about the contact of East and West, aided in the formation of the great universities, which had a direct influence on feudalism and the Church.

A.D. 1338-1453. The wars with France, known as the "Hundred Years' War."

A.D. 1360. Edward the Black Prince ruled at Bordeaux, as Prince of Aquitaine.

A.D. 1431. Henry VI. of England crowned King of France at Paris.

c. A.D. 1500. The introduction of gunpowder ruined feudalism, fortresses which were impregnable against the bow of the yeoman and retainer, crumbling before the new artillery which lay at the entire disposal of King Henry VII. Houses were henceforward constructed, not as castles or places of defence, but as residences, and from this period modern ideas of domestic economy gradually transformed house planning. Sutton Place (A.D. 1521-1527), near Guildford, is one of the earliest examples of a non-castellated domestic residence (page 322).

A.D. 1520. Henry VIII. visited the French King, Francis I., on the Field of the Cloth of Gold; the King and the many knights who followed in his train returning imbued with the newly introduced Renaissance style as practised in France. Girolamo da Trevigi, an Italian, was appointed Court Architect, and Henry VIII. encouraged other foreign artists, amongst whom was Hans Holbein, an accomplished painter of portraits and designer of goldsmiths' work and woodwork.

These and various other causes led to the great Renaissance movement, which is referred to on page 547.

2. ARCHITECTURAL CHARACTER.

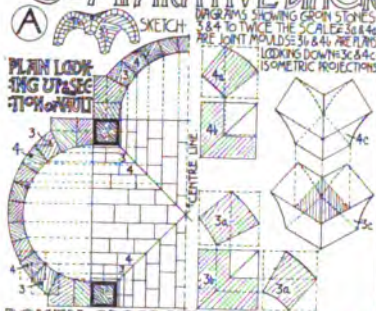
The architectural character of Gothic architecture in Europe has already been referred to on page 268.

The development of mediæval architecture in England from the departure of the Romans till the sixteenth century, has a more complete sequence of style than in other countries. It is usually divided into periods having special characteristics and known as Anglo-Saxon (page 327), Norman (page 328), Early English (page 335), Decorated (page 341), Perpendicular (page 349), and Tudor (page 356), and a comparative table showing the approximate period covered by each is given on page 327.

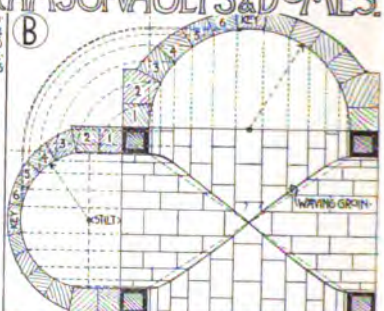
Gothic Vaulting in England.

The problems of vaulting during the Romanesque period have been already explained on page 224, where the essential differences between Roman and Mediæval vaulting are compared. The first

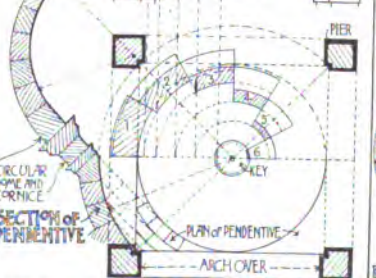
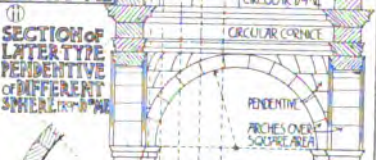
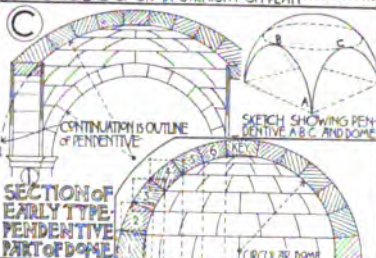
COMPARATIVE DIAGRAMS OF VAULTS & DOMES.



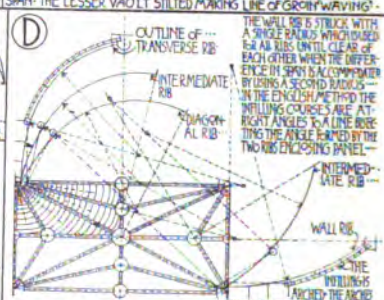
ROMAN CROSS VAULT THE COMPARTMENT IS SQUARE AND SEMI-CIRCULAR VAULTS OF EQUAL HEIGHT MAKING THE LINE OF GROIN STRAIGHT ON PLAN



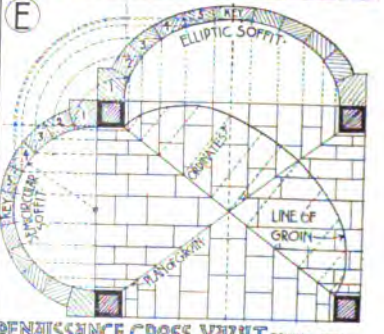
TYPE or ROMANESQUE CROSS VAULT OR LONG COMPARTMENT & SEMI-CIRCULAR VAULTS OF UNEQUAL SPAN THE LESSER VAULT STILTED MAKING LINE OF GROIN WAVING



BYZANTINE & RENAISSANCE DOMES



GOthic VAULT WITH WALL, DIAGONAL, INTERMEDIATE, BRIDGE RIBS OR LONG COMPARTMENT DIFFERENCE OF SPAN ACCOMMODATED BY USING POINTED ARCHES OF DIFFERENT RADII



RENAISSANCE CROSS VAULT OR LONG COMPARTMENT & INTERSECTING VAULTS OF UNEQUAL SPAN BUT EQUAL HEIGHT OBTAINED BY USE OF ORDINATES GROIN LINE STRAIGHT ON PLAN

COMPARATIVE-EXAMPLES-SHOWING-PROGRESS-OF-GOTHIC-VAULTING



consisted entirely in the design of the vaulting planes or surfaces without reference to their meeting lines or groins, whereas mediæval vaulting consisted in profiling the groins which were erected first and supporting the vaulting surfaces which were made to adapt themselves to them.

The problem for the mediæval architects was to vault, in stone, the nave of a church of the basilican type, and at the same time to provide for the lighting of the building by means of clerestory windows in the nave walls above the aisle roofs. The church was thus crowned with a fire-resisting covering over which a wooden roof was placed in order to protect it from the weather.

The evolution of vaulting in England, as on the Continent, involved the solution of a group of constructive problems which have been already hinted at on page 272. Thus it was in connection with the necessity for counteracting the thrust of the nave vaults brought down on piers that the greater part of the evolution of the constructive side of the style took place.

The following may be taken as the main features of vaulting in each period, and are indicated in Nos. 111 and 112.

Norman.—The Roman system was in vogue up to the twelfth century, but the introduction of transverse and diagonal ribs in this period rendered temporary centering necessary for these. In England the raising of the diagonal rib, which produced the domical vault employed on the Continent, seems to have been but little used, and the method was either (*a*) to make diagonal ribs segmental, as in the aisles at Peterborough Cathedral (No. 112 D, G); or (*b*) to make the diagonal ribs semicircular and stilt the springing of the transverse and longitudinal ribs. A great advance was made by the introduction of the pointed arch, which was used firstly for the transverse and wall ribs only, the diagonal ribs (*i.e.* those with the longest span) remaining semicircular. Norman vaulting was either (*a*) cylindrical or barrel vaulting, as at the Tower of London (No. 135); (*b*) groined cross vaulting in square bays (No. 112 A); (*c*) other shapes in which the narrower vaulting arches were stilted (No. 112 B, C), or, in the later period, were pointed; (*d*) Sexpartite (six part) vaulting as in the choir at Canterbury Cathedral, rebuilt by William of Sens in A.D. 1174. Two views of this type of vaulting at the Abbaye-aux-Hommes at Caen are shown in No. 112 E, F.

Early English (Thirteenth Century).—The pointed arch became permanently established, surmounting all the difficulties of difference in span, and enabling vaults of varying sizes to intersect without stilting or other contrivances, as shown in Nos. 111 D and 112 J, L.

The cells, also known as "severies" or "infilling" were quite subordinate to the ribs and were of clunch or light stone in thin beds, resting upon the back of the ribs. These severies were of arched

form, but often had winding surfaces, and were constructed so that their pressure was directed towards the piers and not the wall rib. The "*ploughshare twist*," so called from its resemblance to a ploughshare, was produced by tilting or raising the springing of the wall rib, when forming the window arch bordering on a vaulting compartment, above that of the diagonal and transverse ribs (No. 109 A.) This was a common arrangement, and was necessary in order to obtain greater height for the clerestory windows.

The geometry of the Gothic system was a rough use of mathematical truths in which beauty was sought for, and not a strict regard for the exactitude of scientific demonstration. The curvature of the ribs was obtained from arcs struck from one or more centres, and designed without reference to the curvature of adjoining ones, as is seen in the setting out of Gothic vaulting compartment (No. 111 D). In this lies the whole difference between the Roman and mediæval systems, for in the former the vaulting surface is everywhere level in a direction parallel to the axis of the vault, and any horizontal section of a spandrel or meeting of two cross vaults would be a rectangle. In the ribbed Gothic vault, however, the plan thus formed would have as many angles as ribs, varying according to the curve of the latter.

The plain four-part (quadripartite) ribbed vault, primarily constructed as a skeleton framework of *diagonal* and *transverse* ribs, was chiefly used in this period, as in the naves of Durham, Salisbury (No. 112 J, L), and Gloucester, and the aisles of Peterborough.

Later in the century intermediate ribs, known as *tiercerons*, were introduced between the transverse and diagonal ribs as in the vaulting of the nave of Westminster Abbey (No. 112 K, M), and were especially needed to strengthen the vaulting surfaces by decreasing the space between the ribs. In such cases *ridge ribs* were introduced in order to take the thrust of the *tiercerons* which abut at their summit at an angle, and would have a tendency to fall towards the centre of the compartment unless resisted by the ridge rib. In continental examples the ridge rib is often not continuous, but only extends to the last pair of arches which abut against it obliquely.

Ridge ribs are generally horizontal in England and arched on the Continent, the "infilling" or "severy" having its courses meeting at the ridge in zigzag lines as in the nave of Westminster Abbey (No. 127 C), and the naves and choirs of Lincoln, Exeter and Lichfield Cathedrals, and as found in the churches of South-West France.

A *wall-rib*, called a "formeret," because forming a boundary for each compartment, was also introduced.

Decorated (Fourteenth Century).— During this period there was an increase and elaboration of intermediate ribs

(tiercerons), ridge ribs, and a new set of ribs known as *Lierne* ribs, from the French *lien*—to bind or hold. The name "lierne" is applied to any rib, except a ridge rib, not springing from an abacus.

In the early plain-ribbed vaulting each rib marked a groin, *i.e.*, a change in the direction of the vaulting surface, but *lierne* ribs were merely ribs lying in a vaulting surface, their form being determined independently of such surface, which, however, regulated their curvature.

These *liernes*, by their number and disposition, often give an elaborate or intricate appearance to a really simple vault (No. 112, N, O, P, Q), and in consequence of the star-shaped pattern produced by the plan of such vaults, it is often called "*Stellar*" vaulting (No. 112 Q). Examples of this type exist in the choirs of Gloucester (A.D. 1337-1377), Wells, Ely (No. 137 F), Tewkesbury Abbey nave, Bristol (No. 112 N, O), and the vaulting of Winchester Cathedral (No. 124 E, F), as carried out (A.D. 1390) by William of Wykeham.

The vaulting of this period therefore consisted of transverse, diagonal, intermediate, ridge and lierne ribs—in fact, a vault of numerous ribs, and of panels which became smaller and smaller until a single stone frequently spanned the space from rib to rib, known as "rib and panel" vaulting.

Perpendicular (Fifteenth Century).—The complicated "stellar" vaulting of the late fourteenth and early fifteenth centuries (No. 112 P, Q) led, by a succession of trials and phases, to a peculiarly English type of vaulting in this century known as *fan*, *palm* or *conoidal* vaulting, in which the main ribs, forming equal angles with each other and being all the same curvature, are formed on the surface of an inverted concave cone, and connected at different heights by horizontal lierne ribs.

The development was somewhat as follows:—In the thirteenth century the form of an inverted four-sided hollow rectangular pyramid was the shape given to the vault. In the fourteenth century the masons converted this shape, by the introduction of more ribs, into a polygonal (hexagonal) pyramid, as in S. Sepulchre, Holborn, and elsewhere. In the fifteenth century the setting out of the vault was much simplified by the introduction of what is generally known as "Fan" vaulting, described above (No. 112 R, S).

Owing to the reduction of the size of panels, due to the increase in the number of the ribs, a return was made to the Roman method of vault construction, for in fan vaulting the whole vault was often constructed in jointed masonry, the panels being sunk in the soffit of the stone forming the vault instead of being separate stones resting on the backs of the ribs. The solid method seems to have been adopted first in the crown of the vaults where the ribs were most numerous. In some "perpendicular" vaults the two

systems are found, as at King's College Chapel, Cambridge; in others, as Henry VII.'s Chapel, Westminster, the whole vault is of jointed masonry.

The difficulty of supporting the flat lozenge-shaped space in the top portion of the vault surrounded by the upper boundaries of the hollow cones was comparatively easy in the cloisters, where this type of vaulting was first introduced, because the vaulting spaces to be roofed were square or nearly so, but when it was attempted to apply it to the bays of the nave, which were generally twice as long transversely as longitudinally, difficulties occurred. In King's College Chapel (A.D. 1513) the conoid was continued to the centre, but the sides were cut off, thus forming an awkward junction transversely. In the nave of Henry VII.'s Chapel pendants supported by internal arches were placed away from the walls and the conoids supported on these, thus reducing the size of the flat central space, and changing it from an oblong to a square on plan. At Oxford Cathedral a somewhat similar method was adopted, the pendants also placed some distance from the wall, being supported on an upper arch, and a polygonal form of ribs adhered to.

Fan vaulting is confined to England, and other examples beyond those already mentioned are in the Divinity Schools, Oxford; Trinity Church, Ely; Gloucester Cathedral (No. 112 R, S); S. George's Chapel, Windsor; the retro-choir, Peterborough, and elsewhere.

The depressed four-centred arch (No. 299 M) is typical of the architecture of the Tudor period, although it seems to have been used in the vaulting of earlier churches (No. 111 D). It is not found out of England, and appears to have been first used largely in fan vaulting, to which the reason for its adoption is held to be due. For example, if the diagonal rib is to be a *pointed* two-centred arch, each portion must obviously be less than a quadrant, and the transverse and wall ribs, being shorter, must be considerably less than quadrants, especially if the compartment is oblong, and this would make the window arch in the nave wall of acute lancet form; but the window arch was made equilateral or even less in height compared to its span in this period, and so the segments of a diagonal arch of two centres preserving the same curvature would not meet at their summit without becoming horizontal or possibly bending downwards to each other. To obviate this the transverse and diagonal ribs in an oblong compartment were sometimes made as four-centred arches, all the ribs starting with the same curvature, but at a certain height the portions above this level were drawn with a longer radius in order that they might meet the ribs from the opposite side of the vault at the required height. These four-centred arches were afterwards applied to other parts of the buildings in England, as in arches to

doors and windows, and tracery work in panelling, possibly with a desire to harmonize with the important superstructure of vaulting.

The special forms of vault used in Chapter Houses are referred to on page 299.

"*Pendant*" vaulting is a later form often used in connection with fan vaulting, in which pendants as elongated voussoirs are dropped from a constructive pointed arch, concealed above the vaulting, and form abutments to support the pendant conoids. Henry VII.'s Chapel and Oxford Cathedral are examples of this method of vaulting.

Examples of "pendant" but not of "fan" vaulting are frequent in the Flamboyant period (fifteenth century) in France, as at Caudebec, and other places.

Bosses.—The bosses, or ornamental keystones, which form such decorative features in Gothic vaulting, were a constructive necessity, primarily used to cover the awkward junction of the various ribs meeting at all angles, in order that the awkward mitres of the rib mouldings might be hidden behind the ornament of the boss.

Open Timber Roofs of the Middle Ages.

The open timber roofs of the Middle Ages are a special English feature and may be classed in the following five divisions, being illustrated on No. 113:—

- (1.) Tie-beam Roofs.
- (2.) Trussed rafter or single-framed Roofs.
- (3.) Hammer-beam Roofs of various forms.
- (4.) Collar-braced Roofs, including arch-braced roofs.
- (5.) Aisle Roofs of several forms.

(1.) The "**Tie-beam Roof**" is the earliest form of which there is any record, and the simplest in construction, being merely two rafters pitching one against another with the tie-beam inserted, holding their lower portions to counteract the outward thrust on the walls. This was probably the only form known at the Norman period, and it was never entirely discarded by mediæval builders, being used in every succeeding style (No. 113 A, B). In the early examples, the beam is merely pinned to the wall-plate at either end and unconnected with the rafters. Various methods were afterwards adopted in order to make the truss harmonize well with other features. The tie beam was rarely straight, being cambered or curved; in the later examples this camber governed the pitch of the roof, the purlins resting immediately on it, as at Wellingborough Church. Curved braces were often inserted, connecting the tie-beam with wall-pieces (No. 113 B), the whole being framed together and

giving the favourite form of the arch, as at Outwell Church. In roofs of steeper pitch the open space above the tie-beam was filled in with perpendicular strutting or carved open work, as at Outwell Church, Norfolk. A pillar or king-post and struts were often *supported* on the tie-beam to strengthen the rafters, which gave a pleasing effect, as at Swardstone Church and also as shown in No. 113 A, B. This is an inversion of the use of king-post and tie-beam as adopted in modern roofs, in which the former acts as a suspending piece. A timber arch was sometimes introduced, springing from a wall-piece below the tie-beam, but as the tie-beam always intersected this the result, as seen at Morton Church, Lincolnshire, and elsewhere, was not satisfactory.

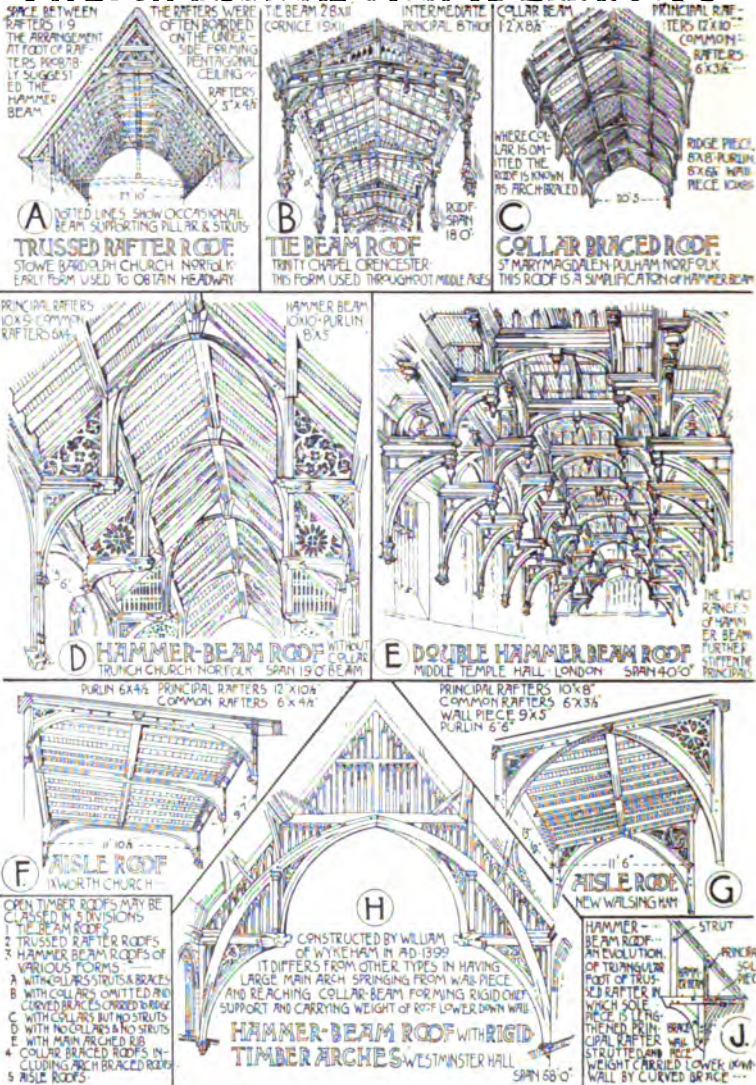
(2.) The "**Trussed Rafter or Single-framed Roof**," of which there are many examples, was probably chosen in order to form a space for the pointed vaults, and having once been used the superiority of its construction and appearance led to its being largely substituted for the tie-beam form. In roofs of large span each rafter had a collar stiffened by braces, which were sometimes passed through the collar, as at Lympenhoe Church, Norfolk, and sometimes stopped on the underside, as at Stowe Bardolph Church (No. 113 A). This type of roof was often boarded on its underside, forming a pentagonal ceiling ornamented with ribs and bosses, as at S. Mary, Wimbotsham, Norfolk. The timbers are halved and held together with wooden pins. As the rafters pitched on the outside of the wall a ledge was left on the inside, and to remove this hollow and unsightly appearance an upright strut was introduced, forming a triangular foot (No. 113 A). This greatly added to the stability of the roof, and is held to be the origin of the hammer-beam roof (No. 113 J). The arched form was obtained by the use of curved braces fixed to the rafters and collar, as at Solihull Church.

(3.) The "**Hammer-beam Roof**" is, as stated, considered to be a natural evolution of the triangular framing adopted at the foot of the trussed rafter roof (No. 113 A), and consists generally of hammer-beam, struts, collars and curved braces, as shown in No. 113 D, E, H, J. The hammer-beam is merely the lengthening and thickening of the "sole-piece" at the foot of the trussed rafter (No. 113 J), the principal rafter being strutted, and the weight of the roof carried lower down the wall by means of a curved brace tenoned into the hammer-beam and wall-piece. Being thus strengthened, it forms a truss which, repeated at intervals of 10 feet or more, supports the intermediate rafters of the bay.

It has been supposed by some that the hammer-beam arose from the cutting away of the tie-beam in the centre when a curved brace is used beneath the tie-beam. It is improbable,

ENGLISH GOTHIC EXAMPLES. II.

• TYPES OF MEDIEVAL OPEN TIMBER ROOFS •



however, that this was the origin, and there is little more resemblance between a hammer-beam roof and a tie-beam roof than consists in their both being double framed, *i.e.*, both having principals or trusses placed at regular intervals, as opposed to the trussed rafter type, which has no principal. Moreover, the tie-beam was used in all types of roof, even in conjunction with the hammer-beam itself, as at Outwell, where the intermediate principals are supplied with hammer-beams; this is a late example, and was probably constructed after the hammer-beam type had attained perfection. Hammer-beams were not constructed until the end of the fourteenth century, and were not in general use until the fifteenth century. Westminster Hall is the earliest recorded example, A.D. 1399 (No. 113 H).

There are many varieties of this form of roof:—

(a.) Those with hammer-beams, struts, collars and curved braces, as Little Welnetham Church, Suffolk. (b.) Those in which the collar-beam is omitted and curved braces carried to the ridge, the apex being framed into a wedge-shaped strut, as at Trunch Church, Norfolk (No. 113 D). (c.) Those with collar-beams and no struts but curved braces, in which a shorter hammer-beam is used, as at Capel S. Mary, Suffolk. (d.) Those with no collars and no struts, curved braces only being used from ridge to hammer-beam, as at Palgrave Church, Suffolk. The arch-braced roof is the outcome of this latter form. (e.) Those with a main arched rib springing from wall-piece and reaching to a collar, forming a rigid chief support, as at Westminster (No. 113 H) and Eltham.

Double hammer-beam roofs have two ranges of hammer-beams, as at S. Margaret, Ipswich, and Middle Temple Hall (No. 113 E), the object of the second range being to further stiffen the principals and convey the weight on to the first range and thence to the wall. They usually occur when the pitch is flatter, but the effect is more complicated and less pleasing.

These are the main divisions, but there are various minor modifications of the type.

(4.) “**Collar-braced Roofs**” are a simplification of the hammer-beam form, and include arch-braced roofs, so called when the collar is omitted and the arched brace carried up to the ridge. This form is very like that constructed nearly a century earlier, as at Tunstead Church, but with the important difference that at Tunstead the braces are of the same thickness as and appear to form part of the principal rafters, whereas the collar-braced kind are not more than 4 inches thick, while the principals may be about 10 inches. Pulham Church, Norfolk (No. 113 C), is an example of this collar-braced form. Brinton Church is another example of the arch-braced type. The curved braces answer the double purpose of strengthening the principals

and carrying the weight lower down the wall, which they also help to steady.

(5.) **Aisle Roofs** in the early period were merely a continuation of the rafters of the nave. At North Walsham, Norfolk (a tie-beam roof), the tie-beam of the aisle is carried through the wall, forming a corbel for the wall-piece of the nave roof, thus binding the whole together. Aisle roofs were usually simple, intermediate trusses being introduced to strengthen the purlins. When they were gabled they were usually of low pitch, and the hammer-beam was rarely introduced for these. New Walsingham Church (No. 113 G) and Ixworth Church (No. 113 F) are good types of aisle roofs.

3. EXAMPLES.

The student is referred to Gothic Architecture in Europe (page 273) for the different types of buildings erected during the Middle Ages which are here further enlarged upon. As mentioned in architectural character (page 283), these buildings were mostly erected in the styles known as Norman, Early English, Decorated, and Perpendicular.

CATHEDRALS.

Refer to the General Introduction to Gothic Architecture (page 273).

The constitution and foundation of English Cathedrals is important and is largely responsible for their monastic character and general arrangement.

They may be divided into three classes :—

- (a.) Cathedrals of the Old Foundation.
- (b.) Cathedrals of the Monastic Foundation.
- (c.) Cathedrals of the New Foundation.

(a.) The Cathedrals of the old foundation are those which, being served by *secular* clergy, were not affected by the reforms of Henry VIII. The following is a list :—The Cathedrals of York, Lichfield, Wells, Exeter, Salisbury, Chichester, Lincoln, Hereford, S. Paul, London, and the Welsh Cathedrals of Llandaff, Bangor, S. David's, and S. Asaph.

(b.) The Cathedrals of the monastic foundation are those which were originally served by *regular* clergy or *monks*, and which were reconstituted at the dissolution of the monasteries as chapters of secular canons. The following is a list :—The Cathedrals of Canterbury, Durham, Rochester, Winchester, Worcester, Norwich, Ely, Carlisle, Peterborough, Gloucester, Chester, Oxford, and Bristol. Westminster Abbey was a Cathedral Church from A.D. 1540–1545.

When the change in these monastic establishments was

ENGLISH GOTHIC.



A. CHICHESTER.



B. DURHAM.



C. ELY.



D. WORCESTER.



E. ROCHESTER.



F. OXFORD.



G. CARLISLE.



H. BRISTOL.
(Nave added, 1868.)

COMPARATIVE VIEWS OF MODELS OF ENGLISH CATHEDRALS.

ENGLISH GOTHIC.



A. YORK.



B. CHESTER.



C. PETERBOROUGH.



D. EXETER.



E. WINCHESTER.



F. HEREFORD.



G. WELLS.



H. GLOUCESTER.

COMPARATIVE VIEWS OF MODELS OF ENGLISH CATHEDRALS.

ENGLISH GOTHIC.



A. SALISBURY.



B. LINCOLN.



C. CANTERBURY.



D. NORWICH.



E. RIPON.



F. LICHFIELD.

COMPARATIVE VIEWS OF MODELS OF ENGLISH CATHEDRALS.

made the abbot became the bishop, the prior the dean, and the monks became canons and choristers; the *personnel* generally remaining the same.

(c.) The Cathedrals of the new foundation are those to which bishops have been appointed, viz., Ripon and Southwell, which are old Collegiate Churches, and the following Parochial Churches:—S. Albans, Newcastle, Wakefield, Manchester, and Truro.

Diversity of style in each building was caused by the fact that with the single exception of Salisbury (page 309) many were erected in all periods, thus presenting a complete history of the evolution of Gothic Architecture.

Most of the English Cathedrals were founded or remodelled after the Conquest, including many which formerly served as churches of the great monastic institutions of the period.

The character which each Cathedral possesses generally indicates its original purpose.

Monastic Cathedrals are almost peculiar to England and Germany. In these countries a large proportion of the Cathedral Churches formed part of monastic establishments in which are found cloisters, refectories, dormitories, chapter houses, scriptorium, library, guest hall, infirmary, prison, wine cellars, mills, workshops, and gardens (*cf.* Monastery of S. Gall, page 261). Cloisters were required in monastic establishments from necessity, as they formed a covered way for the use of monks, round which the various buildings enumerated above were grouped. They were also frequently planned as an ornamental adjunct to cathedrals of the old foundation which were not part of monastic establishments, but were served by secular clergy, as at Salisbury and Wells.

The Collegiate Churches of Lichfield, Ripon, Southwell, York and Manchester, and the Irish, Scotch and Welsh Cathedrals (S. Davids excepted) have no cloisters.

The French Cathedrals were mostly erected in the thirteenth century by funds provided by the laity, and therefore do not form part of monastic establishments, differing in not being provided with the buildings enumerated above.

The English Cathedrals are thus peculiar in retaining many of the conventual features. The plans are long and narrow, and the choir is often of nearly the same length as the nave. The extreme length is often as much as six times, whereas in France it is seldom more than four times the width.

The absence of double side aisles (Chichester and Manchester excepted) and side chapels tends to show that worship was more congregational in form than on the Continent, especially in France, where they are frequently found.

The buildings founded by the Norman prelates, as Norwich, Canterbury, and others, were provided with the apsidal eastern

termination, sometimes developed into a *chevet*, but the English type evolved through Durham to Lincoln had square eastern terminations from the Saxon prototype (page 327), which produced a very different external effect. The *transepts* project considerably, and there are occasionally secondary transepts, as at Salisbury, Canterbury, Lincoln, Wells and Worcester.

The Chapel of the Nine Altars at Durham (A.D. 1242-1290) is in reality an eastern transept.

The main entrance was frequently by a south-western porch, acting as a screen against the cold winds, and in contrast to the large western porches of the French Cathedrals.

The English Cathedrals, in striking contrast with the French examples, owe their internal effect to their enormous length, which is further emphasized by the comparative lowness of the nave vault.

The exteriors are in direct contrast to Continental examples, for the buildings, being mostly situated in a quiet "close" "far from the madding crowd," and seen in conjunction with cloisters, refectory and outbuildings, form a part only of the entire composition (page 276).

The characteristic high central tower, as at Lincoln, York, Ely, Gloucester, Canterbury and Durham, is rendered very effective in contrast with the low nave. The central tower is generally accompanied by two western towers, and is sometimes crowned with a high tapering spire, as at Salisbury and Norwich, while at Lichfield (No. 116) all three towers are crowned with spires.

Flying buttresses are not nearly so common as in France, owing to the comparative lowness of the nave vault. In France the flying buttresses to the *chevet* end of the building produce a confused, restless effect (*cf.* No. 101) absent in the English buildings.

Chapter houses were required for the transaction of business by the chapter or bishop's council. They were originally square in plan, as at Bristol (A.D. 1142-1170), but the example at Durham (A.D. 1093-1140) is apsidal, and that at Worcester (A.D. 1084-1160) is circular internally.

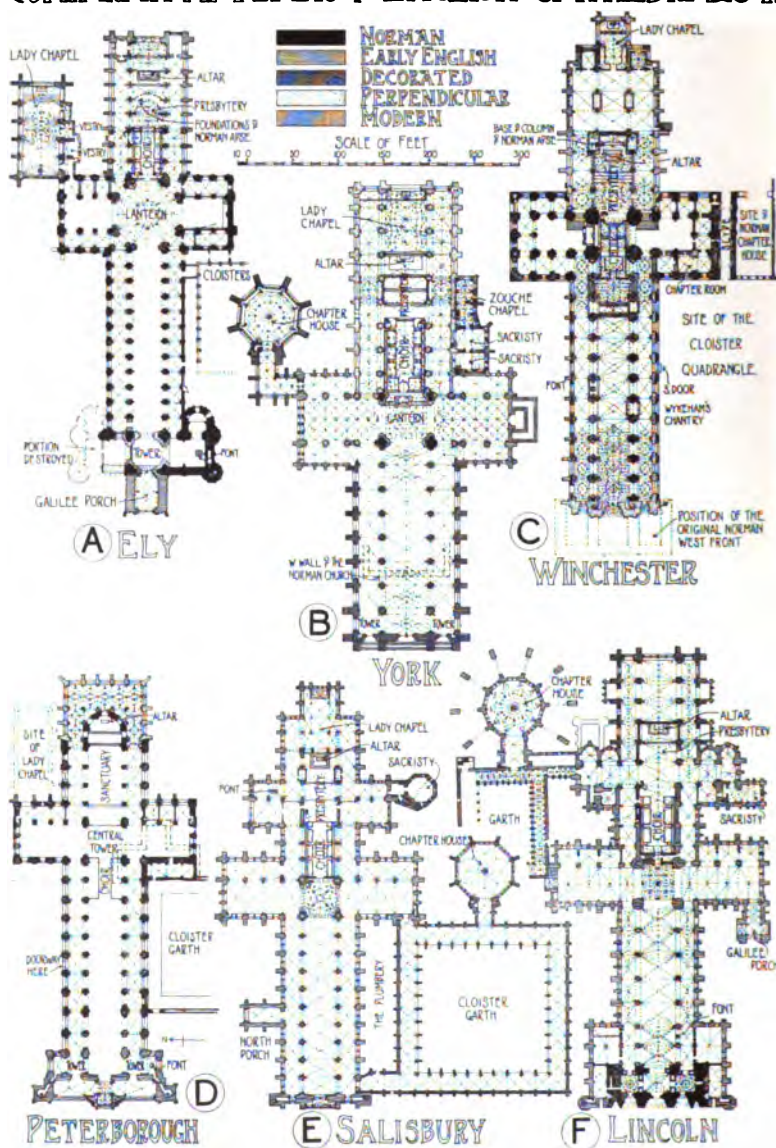
The normal type is octagonal with a central pillar to support the vaulting, as at Lincoln (1225), Westminster (1250), Salisbury (1250), and Wells (1292) (No. 70 K), all of which have vaults supported by a central pillar and the surrounding walls. York (1280-1330) is also octagonal, but has no central pillar, being covered with a sham wooden vault 57 feet in diameter.

Note.—See Nos. 114, 115 and 116 for comparative views of models of the Cathedrals, and Nos. 117-120 for the plans.

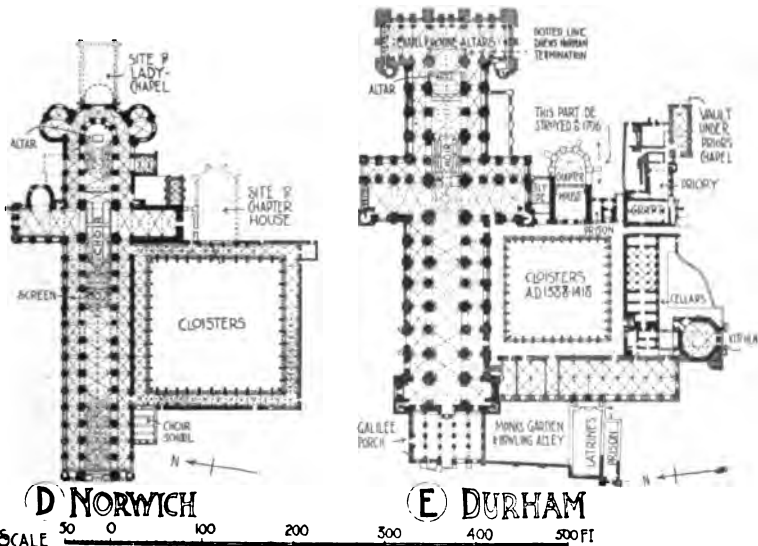
The characteristics peculiar to the leading cathedrals are here indicated, and for the sake of brevity the Early English, Decorated, and Perpendicular

ENGLISH GOTHIC EXAMPLES. III.

COMPARATIVE PLANS OF ENGLISH CATHEDRALS I.

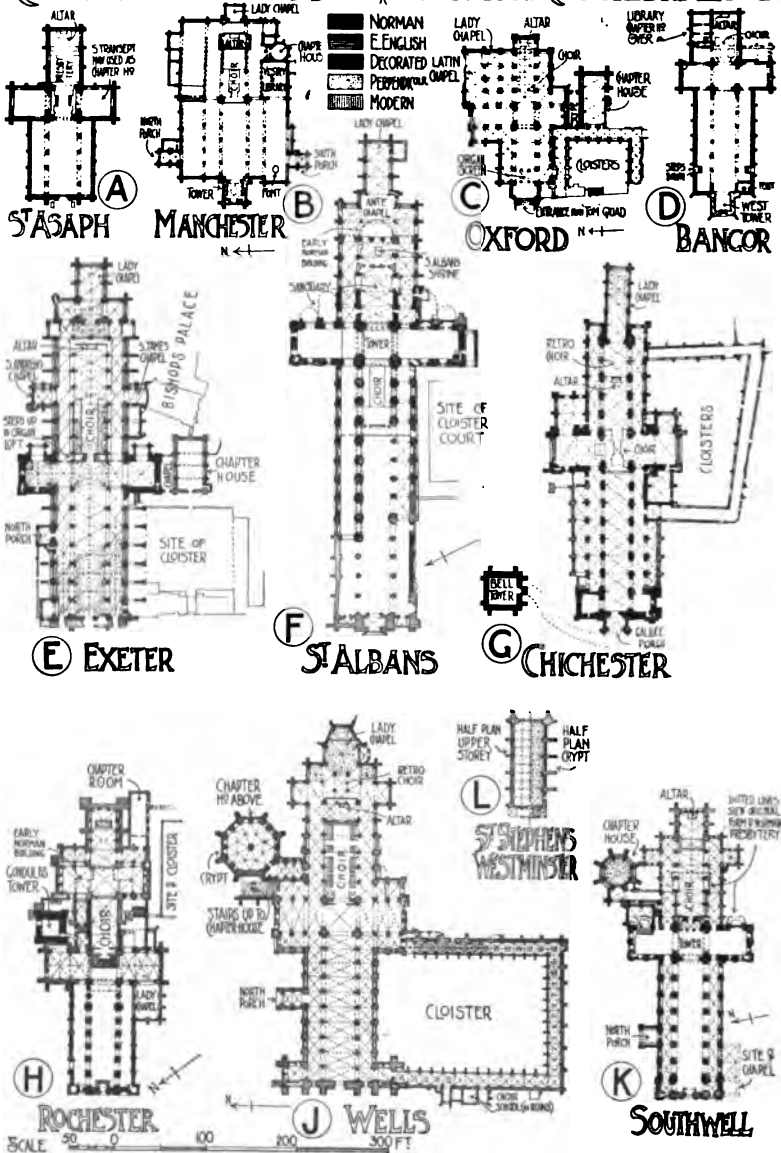


NORMAN 1875
EARLY ENGLISH
DECORATED
PERPENDICULAR
MODERN 1910



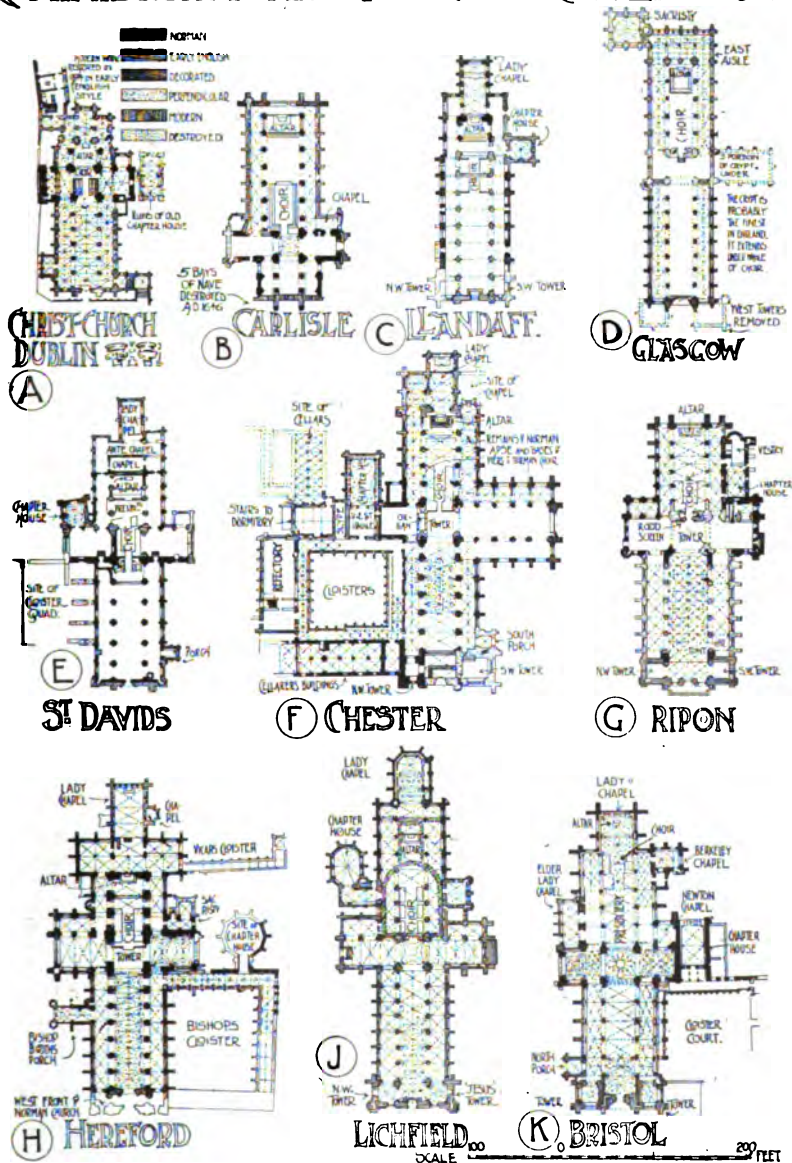
ENGLISH GOTHIC EXAMPLES. V.

COMPARATIVE PLANS OF ENGLISH CATHEDRALS 3.



ENGLISH GOTHIC EXAMPLES. VI.

COMPARATIVE PLANS & ENGLISH CATHEDRALS 4.



*styles are denoted E.E., Dec., and Perp. respectively. Those which were the churches of Benedictine monasteries (page 218) are distinguished by an asterisk *.*

1. **Bangor** (No. 119 D).—Repeatedly destroyed. Present church is Dec. and Perp., but suffered much in the civil wars. In 1866 thoroughly restored by Sir G. Scott.

2. **Bristol** (Nos. 114 H, 120 K).—An Augustinian monastery. Rectangular Norman vaulted chapter house. E.E. "Elder Lady Chapel." Dec. choir, A.D. 1306-1332, and modern nave in imitation thereof, by Street. Peculiar in having nave and aisles of nearly equal height, with lofty aisle windows, as in some German churches (*cf.* No. 172). There is thus an absence of the usual triforium and clerestory. Remarkable canopied wall recesses for monuments.

3. ***Canterbury** (Nos. 116 C, 118 B).—A choir of singular interest, erected by William of Sens, in a style after French models, on the destruction of Anselm's Norman choir in 1170. On his death the work proceeded under William the Englishman. The singular contraction of the width of the choir, in order to preserve two ancient Norman chapels, is worthy of notice. In plan this choir resembled that of the Cathedral at Sens.

At the extreme east is the curious chapel called "Becket's Crown." Extensive crypts are under all the eastern portion. There are double transepts, the original Norman work being of singular interest. The splendid central tower, 229 feet high, is in the Late Perp. style. The nave, also late, is of lesser interest, and the west front and towers are unimportant, except in the general picturesqueness of the group. The chapter house is oblong, with fine wooden ceiling. The Perp. cloisters, on the north side, are of great beauty. A large number of side chapels resembling Continental Cathedrals.

4. **Carlisle** (No. 114 G, 120 B).—An Augustinian Abbey. The east end a fine composition, containing the most perfect of tracery windows.

5. ***Chester** (Nos. 115 B, 120 F).—Originally the church of the Benedictine order of S. Werburgh. Built of red sandstone. Perp. central and lower portion of south-western towers. Cloisters on the north. Lady chapel at the east end.

6. **Chichester** (No. 114 A, 119 G).—The chief example of double aisles, really caused by the formation of lateral chapels. Fine central spire. Norman nave. The Bell Tower is the only example of its kind belonging to an English Cathedral.

7. ***Durham** (No. 114 B, 118 E).—Norman work (1096-1133). An eastern transept called the "Chapel of the Nine Altars," in massive E. E. (1242-1290), and a central Perp. tower, 216 feet in height, help to form a group which for strength of outline and dignity have few, if any, rivals. Internally, the special point is the massive arcade of the Norman nave, A.D. 1099-1128, the finest in England, the pillars about the same width as the openings, and quaintly channelled with characteristic spirals and flutes. The nave was vaulted in A.D. 1133 and is said to be the earliest example of a Norman vault in England.

8. ***Ely** (Nos. 114 C, 117 A, 136 A, D and 137 F).—Norman nave and transepts, with timber roof and modern paintings. Choir remarkable for splendid carving. Most noted feature is the unique octagon, 70 feet in diameter, by Alan of Walsingham, in 1322, replacing a fallen central tower. It has a rich vault of wood only, reaching to a central octagonal lantern. The sides of the octagon are unequal, being alternately 20 feet and 35 feet. The plan influenced that of S. Paul, London (No. 253), which it inspired. Exceptional lady chapel, 100 feet by 46 feet, by 60 feet high; compare chapter house, Canterbury. The west front is an imposing composition (180 feet wide), owing to the bold tower, the same width as the nave and 215 feet high, flanked originally with bold north and south transeptal projections, ended by big octagonal turrets.

In front of the tower projects the E.E. (1198-1215) Galilee porch, two square bays in plan, vaulted and elaborately arcaded.

9. **Exeter** (Nos. 115 D, 119 E).—Unique in having twin towers placed over the north and south transepts (*cf.* S. Stephen, Vienna, page 396). It is the best specimen of the Dec. style, and is exceptionally rich in varied tracery and carved wood and stonework.

10. ***Gloucester** (Nos. 115 H, 118 C).—Very rich in Early Perp. vaulting (No. 112 R, S). Norman choir cased with Perp. work, as at Winchester. Perp. cloisters of singular completeness, on the north side of Cathedral. Central tower, 225 feet high.

11. **Hereford** (Nos. 115 F, 120 H).—Norman nave and choir, E.E. lady chapel and Dec. central tower.

12. **Lichfield** (Nos. 116 F, 120 J, 124 A, B, C, 137 E).—Situated on slightly sloping ground and built of reddish stone. The nave, transepts, chapter house and W. front are in the E.E. style. The Dec. central and two western spires of rich and graceful character form the only example of the triple combination in England. The clerestory windows of spherical triangular form. No cloisters.

13. **Lincoln** (Nos. 116 B, 117 F, 125, 126).—Rebuilt 1185–1200. Situated on the ridge of a steep hill dominating the town, in general outline resembling Canterbury, and having also double transepts and central and western towers, the former (271 feet high) being the highest in England, excluding spires. "National Lincoln" sums up its greatest glory, and the student acquainted with Canterbury choir will see how the French feeling is here departed from. E.E. nave, transepts and choir, and Dec. "Angel choir," 1256–1314. The cloisters are on the north side.

The E.E. decagonal chapter house, vaulted to central pillar, is surrounded by a ring of flying buttresses.

The west front is unusual, consisting of a screen wall behind which rise the two western towers, whose lower parts are therefore invisible.

14. **Llandaff** (No. 120 C).—A long low building, without transepts or side chapels, situated at the foot of a hill. Two western towers. The nave is much restored. No triforium. Square chapter house with central pillar. No cloisters.

15. **Manchester** (No. 119 B).—Perp. (A.D. 1422–1520). Remarkable for having double aisles, obtained as at Chichester by the inclusion of side chapels. Fine stalls.

16. **Newcastle**.—Late Dec. in style. Perp. tower (A.D. 1474), with spire resting on crown of arches, similar to S. Giles, Edinburgh, King's College, Aberdeen and S. Dunstan in the East, London. Fine modern stalls.

17. ***Norwich** (Nos. 116 D, 118 D).—The long, narrow nave, aisleless transepts and choir with apsidal chapels, are Norman (A.D. 1096–1145). The choir clerestory, the windows beneath clerestory on south side of nave, and the vaulting throughout are Perp. The easternmost apsidal chapel, removed in the thirteenth century for an oblong lady chapel, since destroyed. Bold central Perp. spire. Chapter House, resembling that of Durham, destroyed.

18. **Oxford** (No. 114 F, 119 C).—Originally the church of a priory of Augustinian monks. The nave and choir are Norman (1158–1180), and the chapter house and lady chapel are E.E. Pillars of nave, alternately circular and polygonal, supporting Norman arches, beneath which is the triforium gallery, forming quite an unusual arrangement in order to gain height. Norman central tower having E.E. upper part and short spire. Nave shortened by Card. Wolsey when building his college of Christchurch, forms, as it were, a vestibule to choir, which has splendid fan vaulting with pendants.

19. ***Peterborough** (Nos. 115 C, 117 D, 122 A, B, C, D, 136 B).—A Norman Cathedral built between A.D. 1117 and 1190. The interior is considered to be the finest in the Norman style next to Durham. The nave is covered with a painted wooden ceiling of lozenge-shaped compartments, ornamenting what is probably the oldest wooden roof in England. The nave aisles only are vaulted (*cf.* Ely). The apsidal choir is inclosed in a square chapel of Late Perp., fan vaulted, as at King's College, Cambridge.

The grand western façade, 158 feet wide, constructed in A.D. 1233, consists of

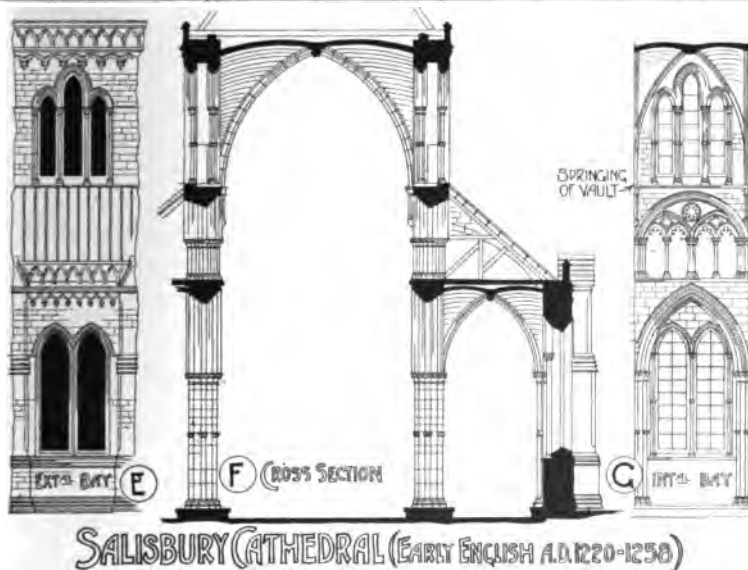
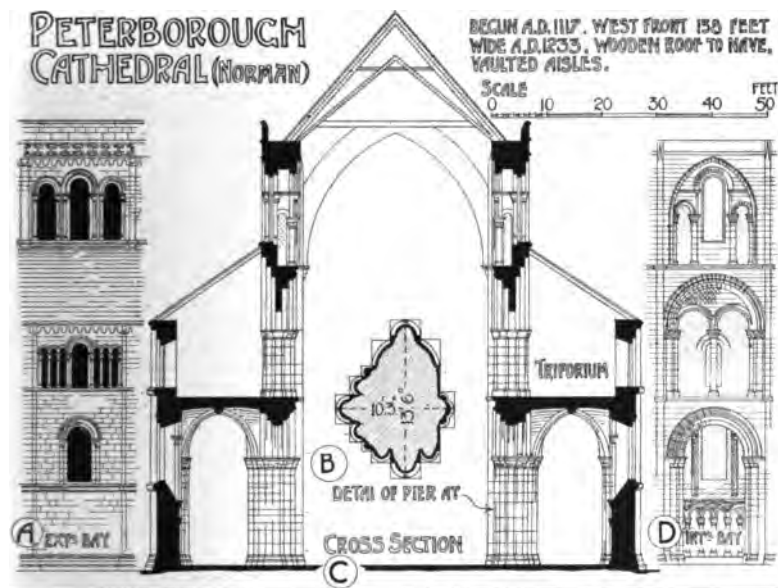
ENGLISH GOTHIC.



121.

SALISBURY CATHEDRAL, FROM THE N.E.

ENGLISH GOTHIC EXAMPLES. VII.



ENGLISH GOTHIC.



123.

SALISBURY CATHEDRAL.
Nave, looking East.

a portico of three gigantic arches, the full height of the Cathedral. A gable crowns each arch, and the end abutments are carried up as small towers crowned with spires. Other towers rise from behind over the end bays of the aisles, though some uncertainty exists as to the intended grouping. A two-storied porch of the Perp. period has been built in the central archway.

20. **Ripon** (Nos. 116 E, 120 G, 136 C).—Central and two western towers. Rich choir stalls and tabernacle work. Perfect western façade in E.E. style (restored by Scott).

21. ***Rochester** (Nos. 114 E, 119 H).—Norman nave. E.E. walled-in choir and transepts. The clerestory to nave and wooden roof are Perp. Fine western Norman doorways.

22. ***S. Albans** (No. 119 F).—Much destroyed and altered in recent years. Norman nave, the longest in England (284 feet), transepts and choir. Western portion of nave is E.E. Dec. marble shrine of S. Alban, recovered and re-erected by Sir Gilbert Scott.

23. **S. Asaph** (No. 119 A).—Rebuilt in the Dec. style. Roof and choir stalls are Perp. Restored by Sir G. Scott.

24. **S. Davids** (No. 120 E).—Situated in a valley, beside the river Alan, and close by the sea. Central tower. Two-storied south porch. The nave arches support a carved oak roof of late (1508) design. Dec. rood-screen at entrance to choir.

25. **Salisbury** (Nos. 116 A, 117 E, 121, 122 E, F, G, 123 and 140 D).—Erected on a level site, surrounded by the green sward of a wide close, broken only by a few elm trees. Constructed almost entirely A.D. 1220–1258 in the E.E. style, forming the type of English, as Amiens is of French Gothic. See Nos. 154 A, 159 B, 160. The plan has double transepts, central tower, and splendid Dec. spire, 404 feet high, being the loftiest in England. The west façade is weak, but there is a fine north porch, boldly projecting and vaulted internally. The cloister is Dec.

26. **Southwell** (No. 119 K).—Norman nave, transepts and towers. E.E. choir. Dec. octagonal chapter house, the chief glory of the Cathedral, has no central pillar, and is believed to have been the model for that at York. Carving very rich and well preserved. No cloisters.

27. **Wells** (Nos. 115 G, 119 J) (1214–1465).—The nave, transepts and western bays of choir are E.E. The E.E. west front, 150 feet wide, including buttresses, is arcaded and enriched with sculpture—the highest development of a type of façade found in English Gothic. Double transepts, eastern lady chapel, and three towers. The triforium, of close set openings with capitals, is unique. As illustrating the comparative height to width of the naves of English and French Cathedrals it has been shown that whereas Wells is 32 feet wide and 67 feet high (two to one), Amiens is 46 feet wide and 140 feet high (three to one).

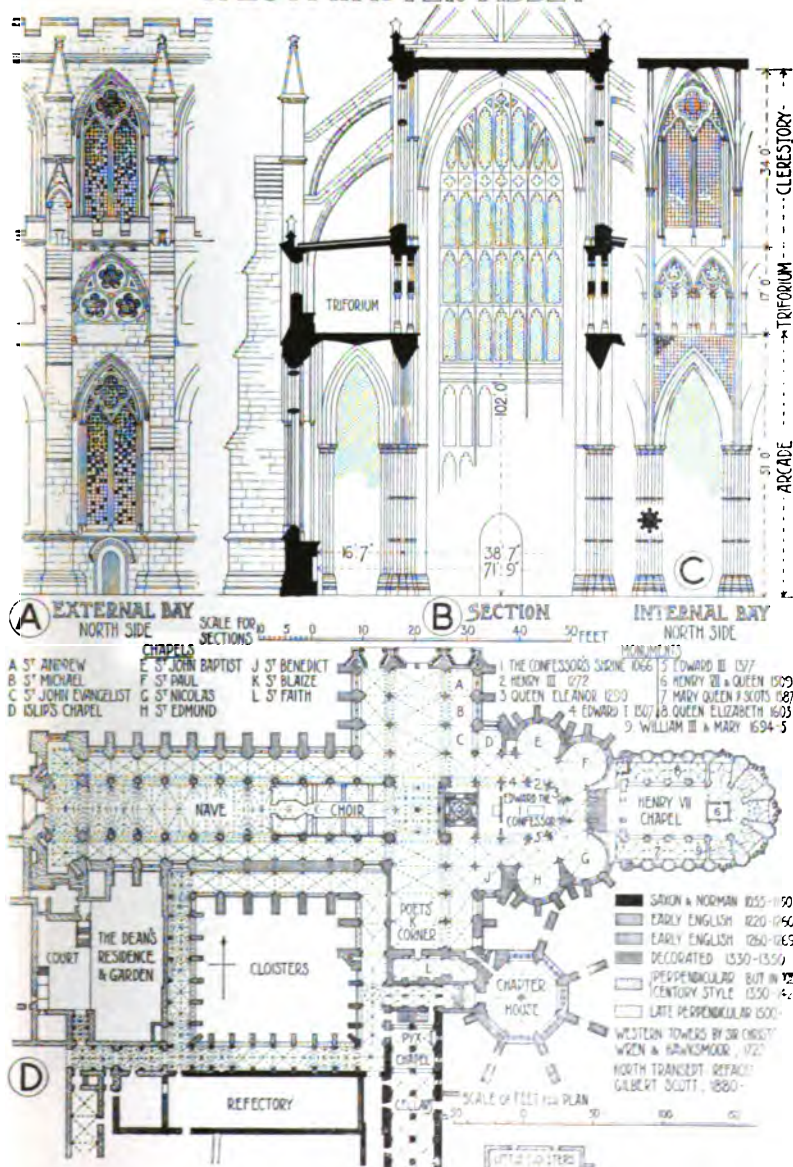
28. ***Westminster** (Nos. 127, 128, 129).—A Benedictine monastery founded by Dunstan; betrays French influence in its polygonal *chevet* and chapels, internal loftiness (having the highest nave in England), and strongly marked flying buttresses. The plan consists of a nave and aisles, transepts with aisles, and eastern *chevet*, surrounded originally by five apsidal chapels, the only complete example of this feature in England. Of the present structure the eastern portion was erected by Henry III. in A.D. 1220–1260. During 1260–1269 the four bays west of the transept were constructed. The nave was completed in the fifteenth century in imitation of the older work, but with Perp. mouldings. The western towers were completed in A.D. 1722–1740, by Wren and Hawksmoor, and Henry VII.'s Chapel was added by Henry VII. in place of the former lady chapel, and is remarkable for its elaborate fan vault. The shrines, chantry chapels, tombs, and monuments are exceptionally fine. The cloisters, in the usual position to the south of nave, have open tracery and elaborate vaulting of the E.E., Dec. and Perp. periods.

29. ***Winchester** (Nos. 115 E, 117 C, 124 D, E, F, 137 G).—It has the greatest total length (560 feet) of any mediæval Cathedral in Europe. Norman transepts and tower, 1070–1107. The Norman nave and choir (1079–1093) were transformed



ENGLISH GOTHIC EXAMPLES. IX.

WESTMINSTER ABBEY



ENGLISH GOTHIC.



128. HENRY VII.'S CHAPEL, WESTMINSTER ABBEY.



129. FAN VAULTING, HENRY VII.'S CHAPEL, WESTMINSTER ABBEY.

ENGLISH GOTHIC.



128. HENRY VII.'S CHAPEL, WESTMINSTER ABBEY.



129. FAN VAULTING, HENRY VII.'S CHAPEL, WESTMINSTER ABBEY.

by William of Wykeham and his successors (1394-1486) with a veneer of Perp. on the Norman core and crowned with a vaulted roof, E.E. retro choir, the largest in England, and Dec. stalls. Compare Gloucester. Tombs and chantries. Wood vaulting to choir.

30. ***Worcester** (Nos. 114 D, 118 A).—A level situation on the banks of the River Severn. Norman crypt, north and south transepts and circular chapter house, the only one in England. E.E. choir. Dec. and Perp. nave, cloisters and central tower (196 feet high). Interesting monuments. The Royal chantries of King John and Prince Arthur (No. 145) are fine specimens.

31. **York** (Nos. 115 A, 117 B).—The E.E. transepts are remarkable for the "classic beauty of their mouldings" (Street). The five sisters—a name given to the lancet windows of the north transept—are each 50 feet high and 5 feet wide. The nave and the octagonal chapter house, without central column and covered with a wooden roof, of Edwardian Gothic (Dec., 1261-1324). Perp. tower. No cloisters. It is notable as the largest in area and width (being no less than 106 feet within the walls) of any English cathedral. The height of the nave is second only to that of Westminster Abbey. The nave and choir are covered with a wooden imitation of a stone vault. The west front is of the French type. In spite of the size of the cathedral it compares unfavourably with Durham for grandeur, strength of outline, and grouping.

(For a description of S. Paul's Cathedral, London, see page 571.)

Note.—For a comparison between English and French cathedrals, which will enable their various characteristics to be understood, see page 378.

MONASTERIES.

(See page 276.)

PARISH CHURCHES.

"The portals of the sacred pile
Stood open, and we entered. On my frame
At such transition from the fervid air,
A grateful coolness fell, that served to strike
The heart, in concert with the temperate awe
And natural reverence that the place inspired :
Not raised in nice proportions was the pile,
But large and massy, for duration built ;
With pillars crowded, and the roof upheld
By naked rafters, intricately cross'd
Like leafless underboughs, 'mid some thick grove,
All withered by the depth of shade above.

* * * * *

The floor

Of nave and ais'e in unpretending guise,
Was occupied by oaken benches, ranged
In seemly rows ;

* * * * *

And marble monuments were here display'd
Thronging the walls ; and on the floor beneath
Sepulchral stones appeared, with emblems graven,
And footworn epitaphs ; and some with small
And shining effigies of brass inlaid."—WORDSWORTH.

The *typical* Parish Church, such as S. Andrew, Heckington (No. 130), was not of the cruciform plan, but consisted of a nave

• TYPICAL ENGLISH PARISH CHURCH •

**STANDREWS
HECKINGTON
Lincs.**
CIRCA 140-150?

THE PARISH CHURCH, USUALLY CONSISTED OF AN AISLE WITH N & S AISLES - A DEEP CHANCEL - W TOWER. THE TRANSEPTS ARE NOT A TYPICAL FEATURE. THE MAJORITY OF EX-AMPLES PROBABLY BEING WITHOUT THEM

PERSPECTIVE VIEW FROM SW (A)

SKETCH OF INTERIOR (B)
SHOWING TRUSSED RAFTER ROOF OVER NAVE AND TRUSSED RAFTER & BOARDED CEILING IN CHANCEL.

PLAN (C)

WEST ELEVATION (D)

SECTION X-X (E)

with aisles, clerestory with windows, and a long and narrow chancel without aisles. There was generally a single western tower, finished with crenellated battlements, but in some of the larger Parish Churches, which are cruciform on plan, the tower is over the "crossing." Where a spire occurs it is usually octagonal on plan, and the change from the square to the octagon was effected in the thirteenth century by means of a "broach" (No. 140 A) resting on angle squinch arches (No. 130 B), while in the following centuries, parapets with elaborate corner pinnacles (No. 140 C, E) and flying buttresses were employed to connect the tower and base of the spire (No. 140 G, H).

The principal entrance was by a porch, sometimes of two stories, on the south side, near the west end, although occasionally the western tower emphasized the main entrance. A large number were erected during the fourteenth and fifteenth centuries.

The typical English Church differs from the French in not being vaulted, and there is, therefore, an absence of flying buttresses. The English developed the "open-timbered" roof, and elaborate specimens of constructive art were indulged in, various types being shown on No. 113, culminating in the "hammer-beam" variety of the fifteenth century. These were often painted with rich colors, and the counties of Norfolk and Suffolk have examples specially famous in this respect.

THE CASTLES OF THE NOBLES.

These form an important part of the architecture of the Middle Ages, and were fortified up to the end of the fourteenth century. They were generally residences as well as military posts; thus, while complying with the ideas of defence, the planning also illustrates the relation of the vassal to his lord, who, while exacting the former's service, was theoretically bound to maintain him.

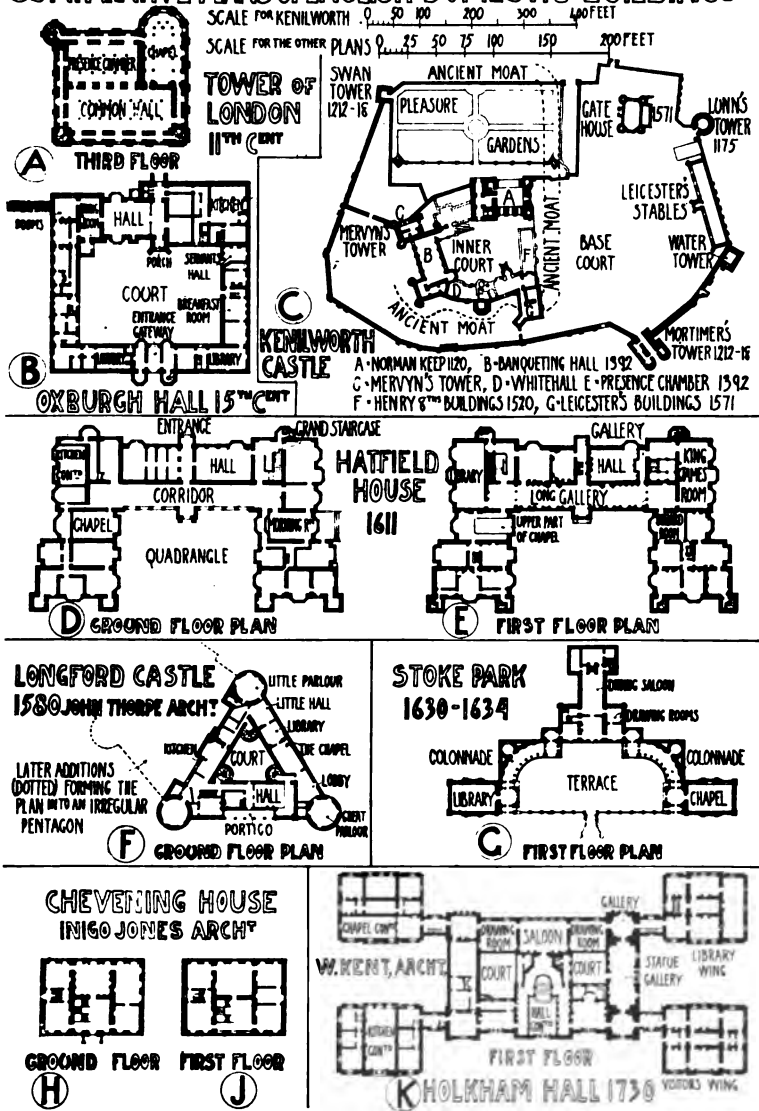
In the **twelfth century**, military structures were all-important, over 1,100 castles being constructed during the reign of Stephen alone. These consisted of (*a.*) an outer "bailey" or court, (*b.*) an inner bailey, and (*c.*) the *donjon* or keep, several stories in height; all being surrounded by a lofty wall with ramparts and parapet and a deep moat, as in the Tower of London (A.D. 1081-1090) (No. 131 A), and Kenilworth Castle (No. 131 C).

"The battled towers, the donjon keep,
The loophole grates where captives weep."—SCOTT.

In the **thirteenth century** these castles were further enlarged by additional buildings, clustering round the keep, the hall still remaining the principal feature. Large hooded fireplaces and chimneys became general. The castles were less strongly fortified, as the growth of the royal power suppressed petty wars between rival nobles, while the invention of gunpowder (A.D. 1500)

ENGLISH GOTHIC EXAMPLES. XI.

COMPARATIVE PLANS OF ENGLISH DOMESTIC BUILDINGS



made the moat comparatively useless, and soon rendered quite obsolete the older systems of defence (page 549).

In the **fourteenth century** an increased desire for privacy arose, and the highest development of the *Hall* was attained, as in *Westminster Hall*, a royal palace; *Ightham Mote* and *Hever Hall*, *Kent*, moated manor houses; *Cranbourne Manor*, *Dorset*, and *Crosby Hall*, *London*, an example of a merchant's home, referred to in Shakespeare's *Richard III.* as Crosby Place.

Penshurst Place, *Kent* (No. 132 A, B, C, D, E, F) (A.D. 1335), is a good example of a nobleman's house. The plan (No. 132 F) indicates that, as in all domestic buildings of the fourteenth century, the Hall was the feature of primary importance. In this case it is 68 feet by 38 feet 8 inches and 48 feet high, with a raised dais at one end and a screen at the other. An external elevation is given in No. 132 A. The roof (No. 132 B, E) is a fine example of a typical open timbered type, and the original "louvre" or opening for the escape of smoke from the central fire still exists.

A characteristic house of the period consisted of a quadrangular plan with central courtyard. On the side away from the entrance was the Hall, the whole height of the house, the kitchen being adjacent. The fire was in the centre of the Hall on "dogs," the smoke being carried away by the "louvre" in the roof, as at Penshurst, or by a wall fireplace with a hooded canopy.

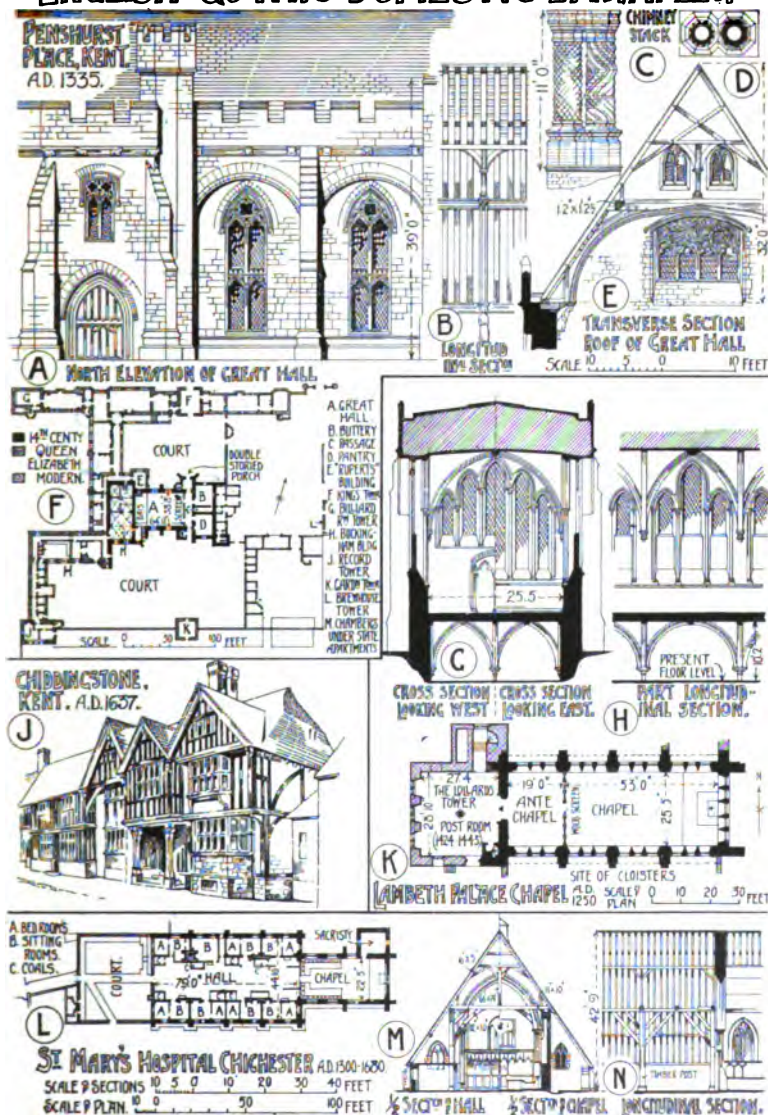
The porch or doorway led to the entry which, by a panelled partition or screen, was separated as a vestibule from the Hall itself. Over this entry was the minstrels' gallery, while at the further end of the Hall was the raised "dais," for the seats of the master and his principal guests, and sometimes, a large bay window gave external and internal importance to that end. The main body of the Hall was occupied by the servants and retainers. The walls were hung with tapestry and with trophies of the chase, and the floor was often only strewn with rushes and still formed, as in the earlier periods, the sleeping-room for the retainers, though they were sometimes lodged in dormitories in the wings. The "solar," or withdrawing-room, was often at right angles to the Hall.

The great banqueting-hall gradually ceased to be used as the common sleeping-room on the introduction of the withdrawing-room, and the fourteenth century house may be taken as the prototype of the modern country house, which in its highest development is an expression of the wants, inclinations, and habits of the country gentleman of to-day, as was the mediæval castle of the feudal baron.

In the **fifteenth century** the central fireplace was moved to the side wall, becoming a distinctive feature, and the sleeping accommodation was much improved, as at Oxburgh Hall (No. 131 B).

ENGLISH GOTHIC EXAMPLES. XII

ENGLISH GOTHIC DOMESTIC EXAMPLES.



In the **sixteenth century** the typical Tudor house consisted of buildings grouped around a quadrangular court, as at Layer Marney (A.D. 1520), Compton Wynyates (A.D. 1520) (No. 150), and Sutton Place (A.D. 1521-1527). The entrance was in the centre of one side under a gatehouse, which gave it prominence; on the opposite side were the hall and offices, the living and sleeping-rooms being ranged along the other two sides, and such rooms were usually "thoroughfare" rooms or, in some cases, only entered from the courtyard.

In the latter part of the century the common dining-hall began to decline in importance, owing to modern ideas of privacy being introduced; but the salient characteristics of the Elizabethan house are dealt with in English Renaissance, page 553.

THE DWELLINGS OF THE PEOPLE.

The formation of towns was often due to considerations of safety, as when traders and others grouped themselves around the castles of the great nobles, or formed a dependency to a monastery; and thus afterwards arose in many towns two rival authorities, viz., ecclesiastical and secular. In the absence of effective police, and in the consequent insecurity against lawless vagabonds, every city was more or less fortified.

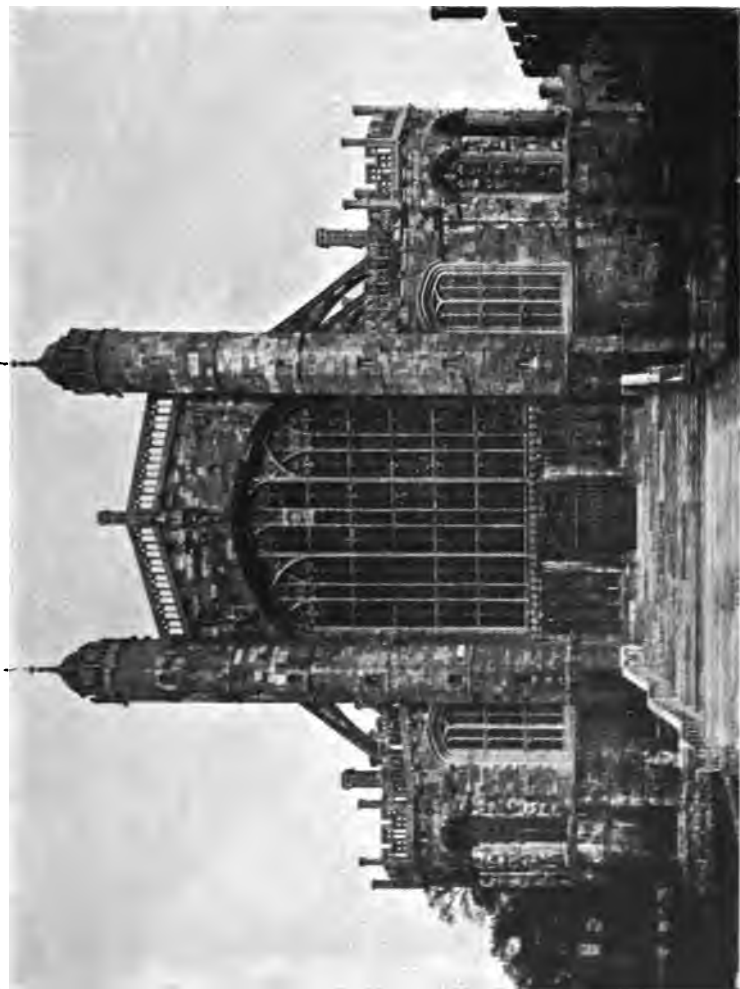
The undeveloped state of the towns is accountable for the absence of town halls, in contrast with France, Belgium, Italy, and Germany, where many such buildings exist.

In towns the dwellings often consisted of a shop on the ground floor, in which the trade of the owner was carried on, light being obtained by a wide opening fronting the street. Behind the shop were the kitchen and living-room, and an external door led to a staircase, which gave access to the sleeping-rooms on the first floor. The "Butcher Row" at Shrewsbury, of the fifteenth century, has ground floor shops, "solar" above, and dormitories in the upper story.

The architecture was more or less developed, in proportion to the condition of the owner, the materials at hand, and other local causes. In this respect the passage way on the first floor to the houses at Chester is a notable example. Houses of half timber and brick with overhanging upper stories abounded, while the Jew's house at Lincoln is a fine specimen of an early stone residence.

CHAPELS.

There were different varieties of these, viz., those forming apartments in palaces or other dwellings, or attached to convents and monasteries, those forming portions of larger churches, sepulchral



S. GEORGE'S CHAPEL, WINDSOR.
West Front.

133.

chapels, those attached to colleges and other educational institutions and those erected on bridges—the germ of all these being a large apartment to which aisles came to be added.

The following are a few examples of different types :—

S. John's Chapel, Tower of London (No. 135); **Lambeth Palace Chapel** (No. 132) (A.D. 1250), with the later addition of the Lollard's tower (1424–1445); **Merton College Chapel, Oxford** (1274–1277), with later additions; the **Chantry Chapel** (fourteenth century), on the **Bridge at Wakefield**; **S. Stephen's Chapel, Westminster** (1349–1364), since destroyed to make way for Westminster Palace; **King's College Chapel, Cambridge** (A.D. 1440), of which there is a model in the Guildhall Museum, London; **S. George's Chapel, Windsor** (No. 133) (1480–1508); and **Henry VII.'s Chapel, Westminster** (Nos. 127, 128, 129) (1500–1512).

COLLEGES AND SCHOOLS.

From the time of Alfred onward there existed a number of grammar schools connected with churches, monasteries, and cathedrals. Colleges resembled the monastic establishments of earlier times and were modelled on them in many ways. The hall was the principal apartment, and this and the other rooms were grouped around a quadrangle, as in the mediæval house.

Winchester College (1387–1393) was built by William of Wykeham, and Eton College (1442) was founded by Henry VI. (1422–1461). The rise of Oxford dates from about 1167, and that of Cambridge from about 1209, and many of the principal colleges at these Universities were erected as follows :—At **Oxford**: the colleges of Merton, 1263–1264; Worcester, 1289; Exeter, 1314; Oriel, 1326; Queen's, 1340; New College, 1379; Lincoln, 1427; All Souls, 1437; Magdalen, 1458; Brasenose, 1509; Corpus Christi, 1516; Christ Church, 1524; Trinity, 1554; and S. John's, 1555. At **Cambridge**: the colleges of Peterhouse, 1284; Clare, 1326; Pembroke, 1347; Gonville, 1348; Trinity Hall, 1350; Corpus Christi, 1352; King's, 1441; Queens', 1448; Jesus, 1497; Christ's, 1505; S. John's, 1511; Magdalen, 1542; and Trinity, 1546.

BRIDGES.

These formed important means of communication, and in many instances possessed a semi-religious character. A few representative examples may be mentioned. Old London Bridge, commenced in 1176, was built by the religious confraternity known as the "Frates Pontis." The "Triangular" Bridge at Croyland, Lincolnshire, still exists, having three pointed arches with abutments at the angles of an equilateral triangle and having three

roadways and three waterways. The Bridge at Warkworth, Northumberland, is in good preservation.

HOSPITALS, ALMSHOUSES AND BEDE HOUSES.

Many of these, principally dating from the fifteenth century, were founded by charitable people, and form interesting examples of semi-domestic character. *S. Mary's Hospital, Chichester*, (No. 132 L, M, N) is mainly of the fourteenth century, although belonging to a very early foundation, and has bedrooms and sitting-rooms for the inmates opening on to the central hall, at the end of which is the chapel. Other examples are *S. Cross, Winchester*; *Ford's Hospital, Coventry*; *S. John's Hospital, Northampton*; the *Bede House, Stamford*, and almshouses at *Cobham, Kent*, and elsewhere.

ANCIENT TIMBER HOUSES.

These are still numerous, and the example from Chiddingstone (No. 132 J), dating about 1637, will give an idea of the appearance of these old timber houses, of which many towns, such as *Chester*, and numerous villages throughout the country, can still boast a number.

MINOR MONUMENTS.

In the cathedrals and churches, the choir screens, tombs, wall tablets, and chantries are specially notable. Many of these are worthy of careful study.

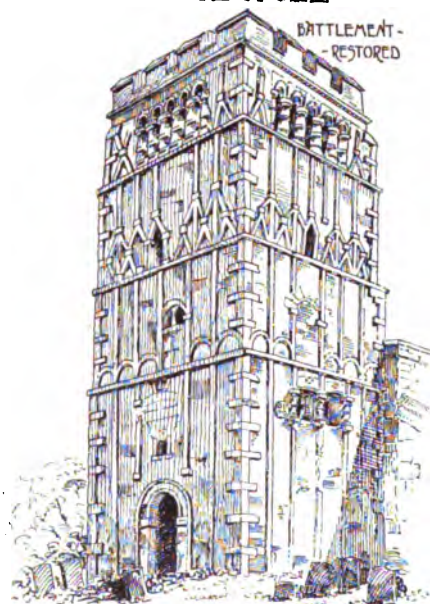
4. COMPARATIVE.

PREFATORY NOTE.

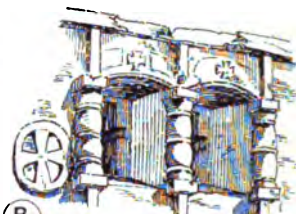
The architecture of England during the Middle Ages can be divided into centuries corresponding to the principal developments, which have their specially defined characteristics, and each period is now treated in a comparative way in a somewhat different manner to the method adopted in other styles, the architectural character and examples in each period being given.

There have been various systems of classification adopted by different writers, but those by Rickman and Sharpe are the best known. Rickman's divisions are made to include periods corresponding to the reigns of English sovereigns, which are given under each style later, whereas Sharpe's divisions are governed by the character of the window tracery in each period.

SAXON ARCHITECTURE...



(A) TOWER, EARLS BARTON.



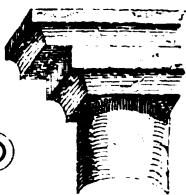
(B) WINDOW, EARLS BARTON.



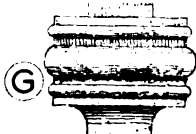
(C) WINDOW, DEERHURST.



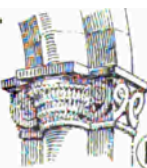
DOORWAY, EARLS BARTON.



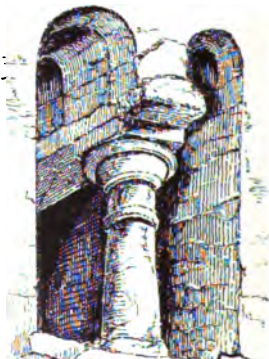
(E) CAP FROM REPTON.



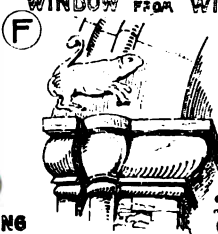
IMPOST FROM CORHAMPTON.



(H) CAPS FROM SOMPTING



WINDOW FROM WICKHAM.



(J) CAPS FROM ST. BENETS CAMBRIDGE.

A comparative table showing the approximate period covered by each is given :—

<i>Dates.</i>	<i>Rickman.</i>	<i>Sharpe.</i>
A.D. 449 (arrival of Anglo-Saxons) to the Conquest in 1066	<i>Saxon.</i>	<i>Saxon.</i>
1066-1189 (<i>i.e.</i> to the end of 12th cent.) ...	<i>Norman.</i>	{ <i>Norman.</i> <i>Transition.</i>
1189-1307 (<i>i.e.</i> the 13th cent.)	<i>Early English.</i>	{ <i>Lancet.</i> <i>Geometrical.</i> <i>Curvilinear.</i>
1307-1377 (<i>i.e.</i> the 14th cent.)	<i>Decorated.</i>	
1377-1485 (<i>i.e.</i> the 15th cent.)	<i>Perpendicular.</i>	<i>Rectilinear.</i>
1485-1558 (<i>i.e.</i> the first half 16th cent.)...	<i>Tudor.</i>	<i>Tudor.</i>

Although the period of each style is thus defined, it must be remembered that the transition from one style to the next was slow and gradual, and can often hardly be traced, so minute are the differences. It is only for convenience in alluding to the different stages that the division is made, for it must not be forgotten that the mediæval architecture of England is one continuous style.

ANGLO-SAXON STYLE (A.D. 449 to 1066).

The buildings are sometimes composed of the fragments of Roman architecture in Britain, or of rude copies, but the scanty remains of this period render it difficult to estimate the character of the buildings. It is probable that timber was the material mostly employed in all classes of buildings, and that the great development in timber work of the later Gothic styles was due to this early use. The masonry work is considered to show signs of the influence of wood architecture, as in the "long and short" work, the triangular-headed openings, the pilaster strips, and the baluster mullions (No. 134), but these features are more likely rude attempts to copy the contemporary Romanesque work of Ravenna and other Italian towns.

The following are a few of the examples of this period:—Worth Church, Barnack Church, Brixworth (Northants), Dover Castle and Church, Earl's Barton (No. 134 A, B, D), Sompting (Sussex) (No. 134 H), Wickham (No. 134 F), Deerhurst (Gloucestershire) (No. 134 C), Greensted Church (Essex), and the crypt at Ripon Cathedral.

A. **Plans.**—Churches seem to have been planned as two simple oblongs, joined by a small chancel arch, the chancel being square-ended (borrowed from the Keltic type), lower and smaller than the nave, and distinctly marked as such externally and internally. There was often a descent of a few steps from the nave into the chancel. Another type of plan is that of the Roman basilican form, as S. Martin, Canterbury, and Brixworth.

Towers, of which Earl's Barton, Northants (No. 134), is an example, are without buttresses,

B. Walls.—These were mostly formed of rough rubble work with ashlar masonry at the angles formed in "long and short" courses, as at Earl's Barton (No. 134 A). The pilaster strips mentioned above are also features.

C. Openings.—These are round or triangular-headed, and have square jambs, as at Deerhurst Church (No. 134 C), and are sometimes divided by a baluster, as at Wickham (No. 134 F).

D. Roofs.—There are no means of knowing exactly how these were treated, as none exist, but they were probably either of timber or composed of loose stones in horizontal layers approaching each other till they met at the apex, as in early Irish examples. Manuscripts represent buildings as covered by slates or shingles.

E. Columns.—The roughly formed balusters, that occur in belfry windows, have been mentioned above, and appear to have been worked by a lathe. Piers in churches are short, stumpy cylinders crowned with square blocks of stone in the place of moulded capitals (No. 134 E, G).

F. Mouldings.—These were few in number and consisted of simple ovolos and hollows coarsely axed. Tools were few, hence the use of the axe in roughly finishing the contours.

G. Ornament.—This was probably scanty, in the absence of technical ability, hangings being probably in use.

NORMAN ARCHITECTURE,

also known as the English Romanesque or Twelfth Century style, comprises the reigns of William I., 1066–1087, William II., 1087–1100, Henry I., 1100–1135, Stephen, 1135–1154, Henry II., 1154–1189.

The general appearance is bold and massive, and presents many similarities with the architecture of Normandy, from whence it was introduced during the reign of William I. It is well described by Sir Walter Scott:

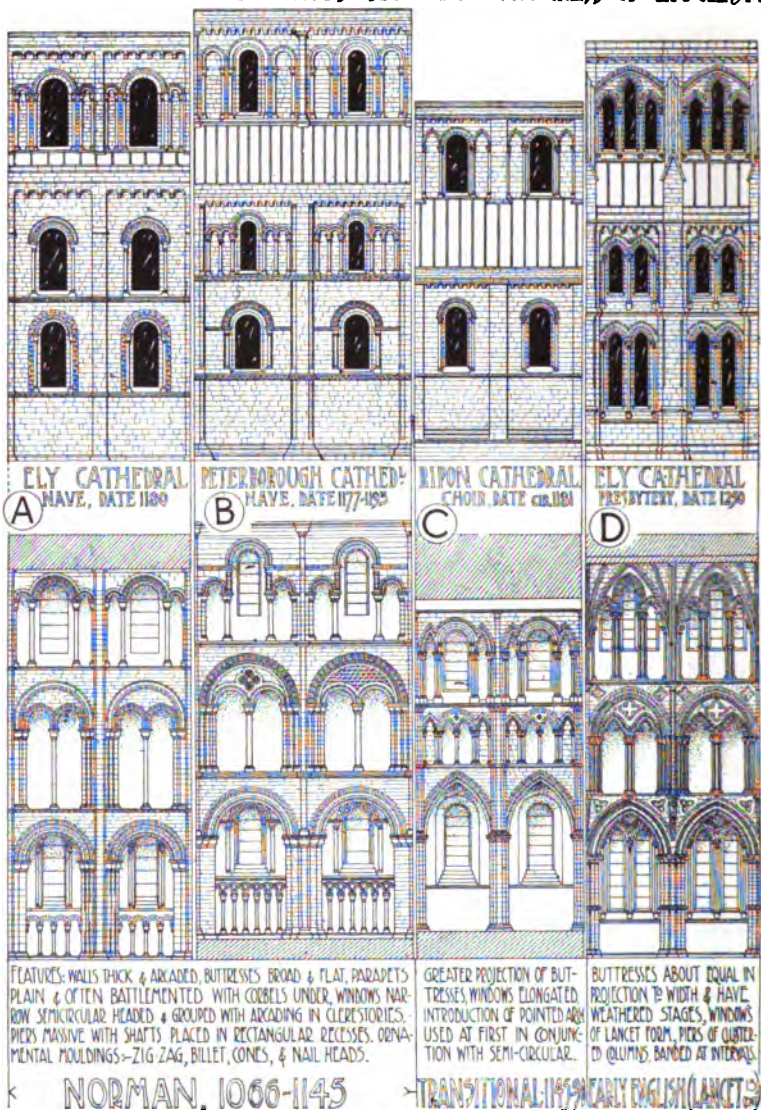
" In Norman strength, that abbey frown'd
With massive arches broad and round,
That rose alternate row on row
On ponderous columns, short and low ;
Built ere the art was known,
By pointed aisle and shafted stalk
The arcades of an alley'd walk
To emulate in stone " . . .

In *London*, the principal examples are:—

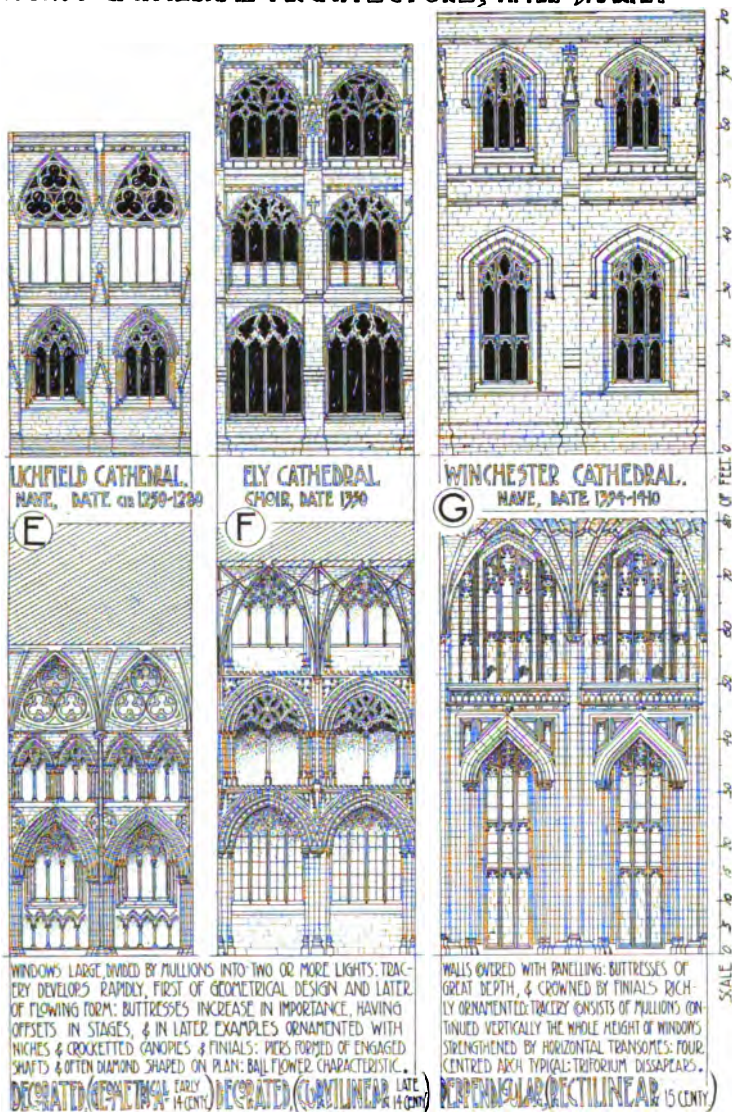
The keep and S. John's Chapel in the Tower of London (Nos. 131 A and 135). The round portion of the Temple Church (Transitional). S. Bartholomew's the Great, Smithfield.



ENGLISH GOTHIC EXAMPLES. XIII. COMPARATIVE EXAMPLES SHOWING PROGRESS OF ENGLISH



ENGLISH GOTHIC EXAMPLES. XIV. GOTHIC CATHEDRAL ARCHITECTURE, AFTER SHARPE.



In the *Provinces*, the principal examples are :—

The greater portion of the Cathedrals of Norwich, Durham, Oxford, Gloucester, Exeter, Ely, Hereford, Peterborough, Winchester, S. Albans, Chichester, Waltham, and Tewkesbury Abbey. Barfreston Church, Kent, and Iffley Church, Oxon (No. 138), are good examples of small Norman churches.

A. Plans.—The nave was considerably lengthened from the Saxon period, and transepts were employed, with usually a tower at the crossing. Most of the cathedrals date from this period, and the general type of plan laid down was developed rather than changed, great length being aimed at, as at Norwich, Durham, Ely, S. Albans, and Winchester. The chapel of the Tower of London (No. 135) is a type of a small chapel in the style.

The towers are square and massive, as at S. Alban's Abbey and Iffley Church (No. 138).

In Norfolk and Suffolk are some fifty churches, having at their west end round towers supposed to be due to Scandinavian influence, but probably owing to these being more readily constructed, in the absence of suitable stone to form square angles.

Castles, owing to the recent conquest, were numerous and important, commanding fords on the rivers, high roads, and other strategic points. The Tower of London gives a good idea of the system of defence adopted (No. 131 A).

B. Walls.—These are very thick, and frequently arcaded in later work, but are often constructed with defective masonry, the core being imperfectly bonded with the facing.

The interiors have nearly an equal height assigned to nave arcade, triforium, and clerestory, and a passage was often formed between the clerestory window and the triple arch carrying the inside of the wall, a method also adopted in the churches at Caen.

Buttresses are broad and flat, with little projection (No. 141 A), and often flush with the corbel table, which supports a plain parapet (No. 136 A, B).

C. Openings.—These were frequently formed with square recesses, known as "orders," to their jambs. The windows are usually small, narrow and deeply splayed, with semicircular heads. They are in single lights, but double windows divided by a shaft frequently occur in towers. Three openings, of which the centre one is largest, are sometimes grouped together.

Doorways are deeply recessed and richly ornamented with the zigzag ornament and beak-head, as at Iffley Church, Oxon (No. 138), or elaborately carved with sculptural subjects, as at Barfreston, Kent.

D. Roofs.—The vaulting was waggon-headed, or intersecting with plain groins (No. 112 G).

The roof-trusses were of open timber, chiefly of king-post form,

ENGLISH ARCHITECTURE (THE NORMAN STYLE).



138. IFFLEY CHURCH, NEAR OXFORD.
 West Front.

ENGLISH ARCHITECTURE (THE NORMAN STYLE).

NORMAN MOULDINGS



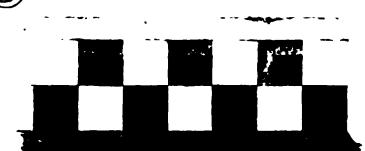
(A) ZIGZAG, LINCOLNSHIRE 1120



(B) CHEVRON, ST CONTEST CAEN



(C) BILLET, WINCHESTER 1090



(D) BILLET, CANTERBURY



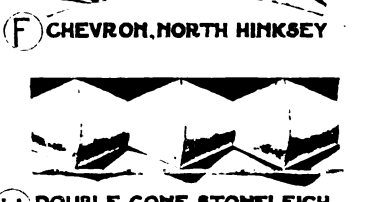
(E) CHEVRON, WESTMINSTER 1097



(F) CHEVRON, NORTH HINKSEY



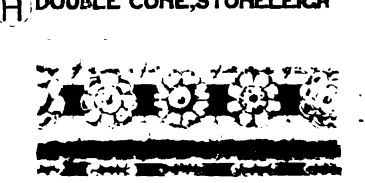
(G) BILLET, ABBAYE-AUX-DAMES



(H) DOUBLE CONE, STONELEIGH



(J) MEUBLE, ST PETERS AT COWTS



(K) IFFLEY, OXON



(L) BEAKS HEAD, N. HINKSEY



(M) EMBATTLED, LINCOLN 1140

and having an inclination of forty-five degrees, the covering being of lead or shingles. The simple framing is either left exposed, or has a flat ceiling boarded and decorated. In fact, all the existing cathedrals or abbeys of this period had originally wooden ceilings, but were vaulted later, as at Gloucester, Exeter, and Durham.

E. Columns.—These are low, massive, and either polygonal or circular (No. 135), as at Gloucester, Bristol, and Exeter, while at Durham fluting and zigzag channellings were worked on the columns, without regard to the courses. Clustered piers, as at Peterborough (No. 122), with rectangular recesses, were also used, often in conjunction with round piers, as at Durham and Waltham. The small shafts occurring in the recessed orders of doorways and windows were sometimes richly ornamented.

Capitals (Nos. 146 and 148), are usually of the cushion form, being sometimes carved and scalloped, but occasionally forms reminiscent of Roman architecture occur, as the Ionic example, in the White Tower, London (No. 135). The Corinthian type frequently met with in France is rare.

F. Mouldings.—The ornamented mouldings, as the chevron or zigzag, billet, beak-head, nail-head, bowtel, or roll moulding, are shown on Nos. 139 and 146, and form a most important decorative element in the style.

Corbel tables, supported by corbels or grotesques, constitute crowning features on walls and towers.

G. Ornament.—The plain treatment of the earlier period was succeeded by the highly decorated work of the late period, which was richly carved with nail-head, corbel, billet, and other ornamented mouldings (No. 139).

Wall arcades of intersecting arches (No. 136 B), along the lower part of the aisle walls, constituted an effective dado decoration.

It is probable that hangings were employed in interiors. Rudimentary decoration, consisting of black and white, or simple colors in stripes, forming lozenge-shaped and other figures roughly executed in distemper, produced a bold and not unpleasing effect, as in the roof at Peterborough. Late in the period stained glass began to be employed, the glass, in small pieces, being chiefly white, leaded together to form patterns, with the addition of brown lines.

A Norman font, piscina and sedilia are shown on No. 144.

THE EARLY ENGLISH STYLE.

Also known as Lancet, First Pointed, Early Plantagenet, or Thirteenth Century Style, comprises the reigns of Richard I., 1189–1199; John, 1199–1216; Henry III., 1216–1272; Edward I., 1272–1307.

The style of this period, shaking itself free from the massive

Norman, is magnificent and rich, strong in its dependence upon proportion, well-defined outline, and simplicity in decoration. The long trails of dog-tooth ornament lurking in the dark furrow of the channelled recesses, the foliated capitals and bosses intruding their luxuriance upon the mouldings and hollows, and the knots of pierced and hanging leaves, extending like some petrified garland or bower of filigree work round the arch, almost impart life and vegetation to the very stones of these door and window openings. The tall and narrow lancet openings give an upward tendency to the design, and the boldly projecting buttresses and pinnacles, and steeply pitched roofs, mark the exteriors. Internally, in place of the massive Norman pillar, slender groups of shafts occur connected by bands to the piers. The pointed arch vaults are bolder, more elegant, and used more frequently (page 286).

In *London* the principal examples are:—

The round portion of the Temple Church, which may be called Transitional, between Norman and Early English. The Eastern portion of the Temple Church. The choir, transepts, and first four bays of the nave of Westminster Abbey (1220–1269), a portion of the Cloisters, and the Chapter House, restored (No. 127). The Chapel of Lambeth Palace (No. 132 G, H, K). The Choir, Lady Chapel, and nave (restored) of S. Mary Overie (S. Saviour), Southwark.

In the *Provinces* the principal examples are:—

Salisbury Cathedral (Nos. 121, 122, and 140 D), York (transepts) (No. 117 B), Lincoln (nave) (No. 117 F), Rochester (choir and transepts), Wells (nave and west front), Lichfield, Ely (choir transepts and Gallilee Porch, 1198–1218) (No. 136 D), Worcester (choir), Bristol (the Elder Lady Chapel).

A. Plans (No. 117 E).—These varied but little from the Norman. The vaulting as it advanced modified the planning, as, when pointed arches were finally adopted, nave compartments were made oblong in place of the former square divisions. Flying buttresses were introduced.

The “broach” spire (No. 140 A, B), in which the upper portion rises from the square tower without a parapet, is characteristic.

B. Walls.—These retain the massiveness characteristic of Norman work, but more cut stonework was employed, and less rubble filling, the concentration of the weight of the roof and vaulting on the buttresses leading to the gradual treatment of the walling between as a mere screen. The proportion of opening to the piers adjoining is often excellent, as in the transept of Salisbury Cathedral.

Buttresses more pronounced than in the Norman period, being generally equal in projection to their width, in order to resist the lateral outward pressure of the pointed vaults, and

were formed into stages by weathered set-offs (Nos. 127 A, B, and 141 B). Their arrises were often chamfered, and the different stages were frequently gabled. Flying or arched buttresses (No. 141 E) were first utilized in this period, but were not of common occurrence till a later period.

In the interiors the nave arcade usually occupies the lower half of the height, the upper half being divided equally between triforium and clerestory, as at the choir of Ely, the naves of Lichfield (No. 124 C), and Lincoln; but sometimes, the triforium was diminished in order to provide a larger display of glass, as at Westminster (No. 127 C) and Salisbury (No. 122 G).

c. **Openings.**—Proportions, generally, are more slender than in Norman work, and pointed arches came into general use for constructive reasons, at first in connection with vaulting, then gradually throughout the whole building.

The doorways are often richly treated, and ornamented with carved foliage (No. 143 A).

Windows (Nos. 122, 136 D, and 142 A, B, C, E, F, G) are of lancet form, and tracery was developed, especially the early form known as "plate" tracery (No. 142 A, B), so-called because the openings were cut through a flat plate of stone.

Cusps or projecting points of Gothic tracery were introduced in the latter part of the Early English style, being let into the soffit of the arches in separate small pieces and entirely independent of the mouldings. This form of detached cusping is found generally in the circular lights, the heads of windows having cusps forming part of the tracery itself. The spaces between the cusps are known as foils (Lat. folium=a leaf) being trefoil, quatrefoil or cinquefoil when having three, four or five openings.

Narrow lancet windows are grouped in two, three, or even five lights, as in the "Five Sisters" in the north transept, York (page 316), the glass being usually kept near the exterior of the wall, making the inside jamb very deep.

d. **Roofs.**—These are steeper than in the last period, approaching the shape of an equilateral triangle, *i.e.*, sixty degrees. The framing was exposed where there was no vaulted ceiling. The braces were used to form a waggon shape, or semicircular ribs were employed, when the close setting of the flat rafters produces the effect of barrel vaulting. (Vaulting, see page 286, and Nos. 111 and 112.)

e. **Columns.**—Piers consist of a central circular, or octagonal shaft, surrounded by smaller detached columns (No. 146), often of polished Purbeck marble, held in place by bands at intervals, as at Salisbury (No. 123) and Westminster Abbey.

Capitals were frequently moulded, so as to produce fine bold shadows (No. 146), or carved with conventional foliage (No. 148), placed on the bell or lower portion of the capital. The normal abacus is circular on plan.

ENGLISH GOTHIC EXAMPLES. XV.

THE EVOLUTION OF GOTHIC SPIRES IN ENGLAND



(A) ST. PETER
RAUNDS, NORTHANTS
BROACH SPIRE



(B) ST. JOHN
KEYSTONE, HUNTS
BROACH SPIRE



(C) ST. WULFRAN
GRANTHAM, Lincs.
PINNACLE, ANGLE TURRETS & CROCKETS



(D) SALISBURY
CATHEDRAL, WILTS.
PINNACLE, DOUBLE ANGLE TURRETS



(E) ST. MARY
BLOXHAM, OXON.
SPIRE ON OCTAGON TOWER, DRAGON-BUTTRESSES



(F) ST. PETER
KETTERING, NOTTS.
CASTELLATED ANGLE TURRETS & PINNACLE



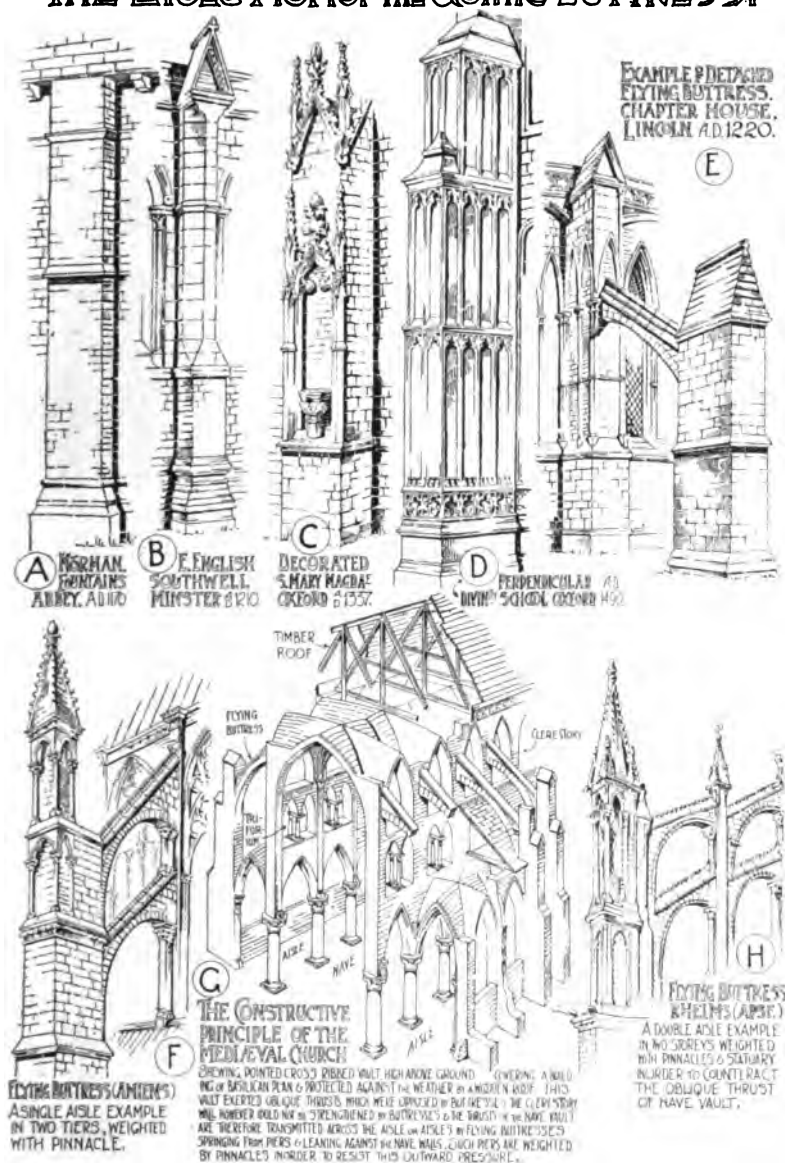
(G) ST. JAMES
LOUTH, Lincs. &
ANGLE TURRETS & FLYING BUTTRESSES



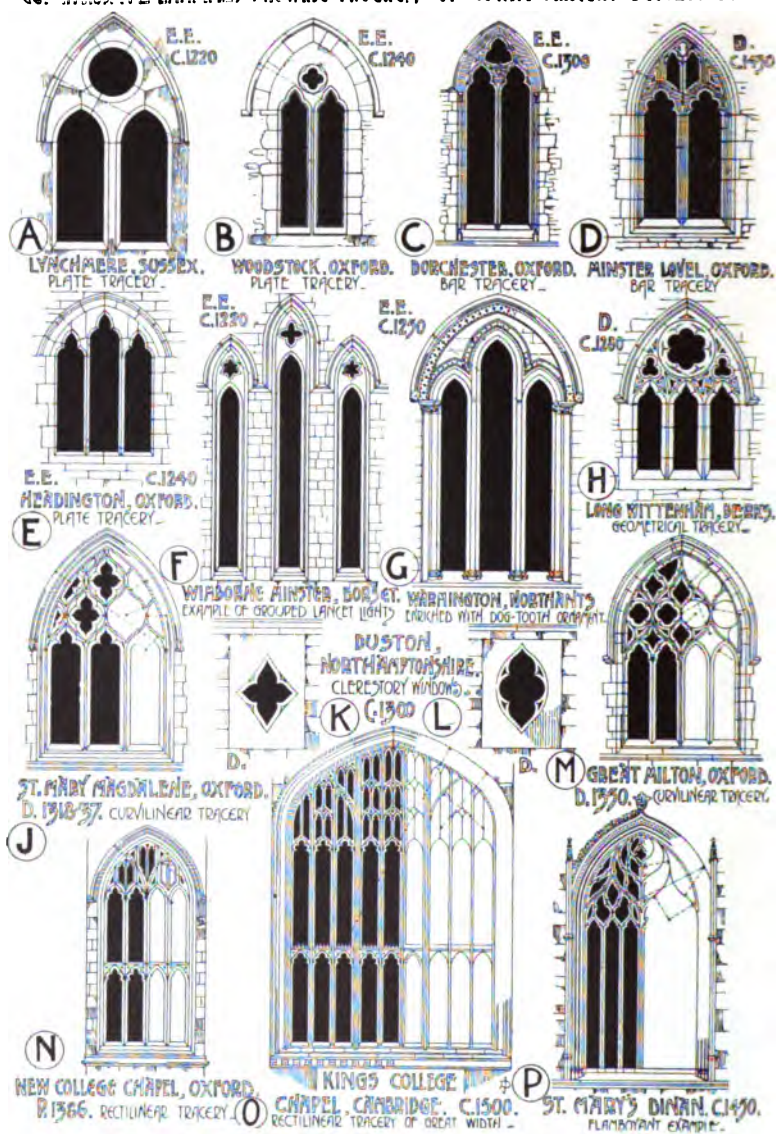
(H) ST. MICHAEL, COVENTRY, WARWICKSHIRE

ENGLISH GOTHIC EXAMPLES. XVI.

THE EVOLUTION OF THE GOTHIC BUTTRESS.



ENGLISH GOTHIC EXAMPLES. XVII.
COMPARATIVE EXAMPLES SHOWING PROGRESS OF GOTHIC TRACERY DEVELOPMENT



F. Mouldings.—These are bold, deeply undercut, and often of pear-shaped section, following the outline of the rectangular recesses (No. 146). The chiselled dog-tooth succeeded the axed nailhead decoration of the Norman period.

G. Ornament.—The most characteristic ornament is the dog-tooth, which was generally placed in hollow mouldings, and was used in great profusion (Nos. 143 and 147). The *chisel* was generally used, taking the place of the *axe* in the Early Norman period.

Carved foliage is conventional, and crisp and fine in treatment (No. 147), typical examples consisting of convex curling masses, known as "stiff leaf foliage."

Flat surfaces are often richly diapered (see Glossary, page 691), as in Westminster Abbey (No. 127).

Sculptured figures of large size were used, and placed in niches with canopies over them. The west front of Wells (1206-1242) has 300 statues, being a grand composition where sculpture is fully combined with architecture.

In regard to color work, it has been suggested that the carved diapers of this and the next period are copies in stone of the hangings or painted decorations of the previous period. There is ground for believing that such carved diapers were colored, as was the case with Greek and Roman ornament.

Stained glass rapidly increased in importance, the pieces being small and leaded up in patterns so as almost to suggest the cubic formation of mosaic. A general tone of color pervades the windows, and an unrivalled deep and violet-like blue was a favourite tint, as in the fine thirteenth century glass at Canterbury Cathedral.

Examples of an Early English font, piscina, sedilia, and tabernacle are shown on No. 144, and a gable cross, finial, sculptured vaulting bosses, and carved bracket on No. 149.

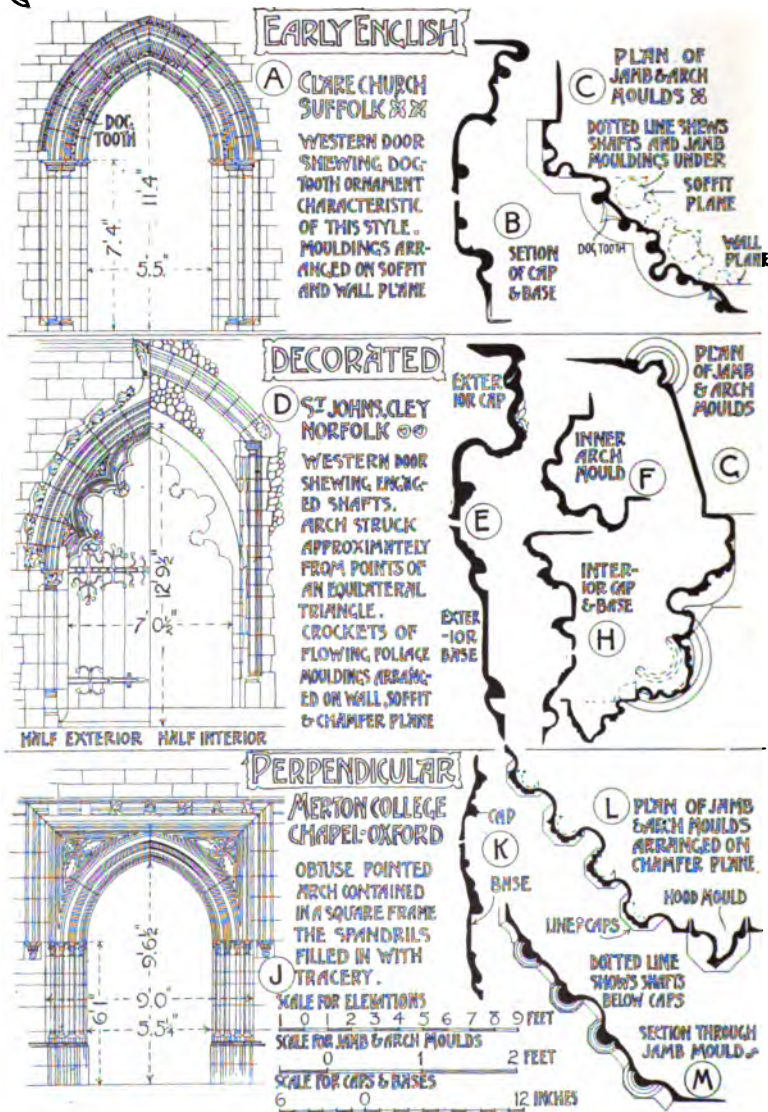
In the Early English and following periods, exquisite decorative art was produced in such works as the Psalters, Missals, Books of Hours and Chronicles, in which the huntsman, fisherman, shepherd, labourer, scribe, saint, king, knight and monk were represented, forming a valuable record of contemporary life. The Mediæval Room at the British Museum contains examples of armour metalwork, ivory and woodcarving, caskets, rings and utensils, illustrative of the ornamental art of the periods.

THE DECORATED STYLE,

also known as the Geometrical and Curvilinear, Middle Pointed, Edwardian, Later Plantagenet, or Fourteenth Century Style, comprises the reigns of Edward II., 1307-1327, Edward III., 1327-1377.

ENGLISH GOTHIC EXAMPLES. XVIII.

COMPARATIVE EXAMPLES OF ENGLISH GOTHIC DOORWAYS



The general appearance, although there is an increasing richness of ornamentation, is simple, from the small number of parts, and magnificent, from the size of the windows filled in with geometrical and flowing tracery. Clerestories were enlarged at the expense of the triforium. Vaulting ribs were more numerous and complex than in the previous style, the vault becoming a main feature in the effect of the interiors.

In *London* the principal examples are :—

Westminster Abbey (three bays of the eastern cloister walk and the polygonal chapter house); the Chapel of S. Etheldreda, Ely Place, Holborn, and the Dutch Church, Austin Friars.

In the *Provinces* the principal examples are :—

Lincoln Cathedral (nave and east end, including angel choir, 1260-1280), Ely Cathedral (the eastern portion), York Cathedral (the choir, west front and chapter house), Exeter and Lichfield Cathedrals (naves), S. Albans (choir), Salisbury, Wells, and Southwell (the polygonal chapter houses), Stone Church, Kent, and the Eleanor Crosses.

A. Plans.—The new plans were set out with a wider spacing in the bays, more noticeable in parish churches than in cathedrals already started in earlier periods. The progress of vaulting regulated the planning of the piers, and was in itself strongly influenced by the increased size of the openings required to exhibit stained glass. In domestic architecture the "Hall" was highly developed, as at Westminster and Penshurst (No. 132).

Several of the great central towers were now carried up, as Salisbury (Nos. 116 A, 121 and 140 D), Lincoln (Nos. 116 B and 125), and Lichfield (No. 116 F).

Spires, usually octagonal, are lofty, and the "broach" form, characteristic of the thirteenth century, gradually gave way to parapets with angle pinnacles (No. 140 C, D, E). Spire-lights are ornamented with crockets (No. 147 K), and ribs occur on the angles of the tapering spires.

B. Walls.—The increased size of the traceried windows, and the importance of the buttresses are characteristic of the style, and the extension of tracery to the walls in the shape of panelling was now introduced.

Buttresses occur with offsets in stages, and in later periods are ornamented with niches (No. 141 C) and crocketed canopies, as in the exterior of Lincoln (No. 125). Angle buttresses, set diagonally, were introduced in this period.

Parapets were often pierced with flowing tracery (No. 147 N), but this was especially a French feature, the English generally keeping to the battlemented form (No. 147 M).

C. Openings.—The proportions of height to width are less lofty than in the Early English period.

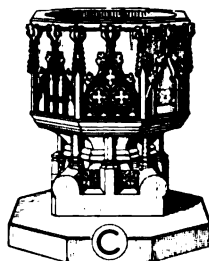
ENGLISH GOTHIC EXAMPLES. XIX.



N. FONT: COLESHILL, 9
WARWICKSHIRE



E.E. FONT: LACKFORD,
SUFFOLK, 2



D. FONT: OFFLEY, HERTS.



P. FONT: CLYMPING CH. SUSSEX



N. PISCINA: CROWMARISH,
OXFORDSHIRE



E.E. PISCINA: COWLING, SUFFOLK



D. PISCINA: ST. BEDWYN,
WILTSHIRE



P. PISCINA: COBHAM, KENT



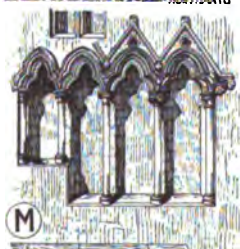
E.E. TABERNACLE: WASHINGTON,
NORTHANTS



N. SEDILIA: ST. MARYS, LEICESTER.



D. TABERNACLE: LUTON,
CATHER



E.E. SEDILIA: RUSHDEN, NORTHANTS



D. SEDILIA: MERTON, OXON.

ARCHITECTURAL LECTURE DIAGRAM NO. 9
SANCHEZ PETERSEN & NEW BRIDGE ST LONDON



P. SEDILIA: ST. MARYS, OXON

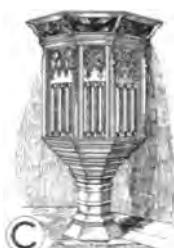
ENGLISH GOTHIC EXAMPLES. XX.



PULPIT, STEEPLE ASTON, OXON.



PULPIT (EXTERNAL)
MAGDALENE COL. OXFORD.



PULPIT, WOLVERCOT, OXON.



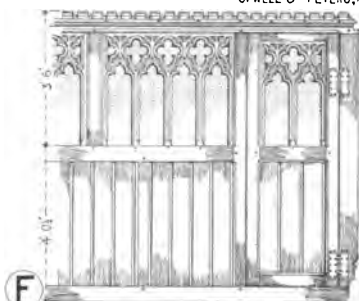
BRASS
5' 9" HIGH.
C. 1380.

EAGLE LECTURN.
UPWELL, ST. PETERS, NORFOLK.



ROODLOFT, HANDBOROUGH, OXFORDSHIRE.

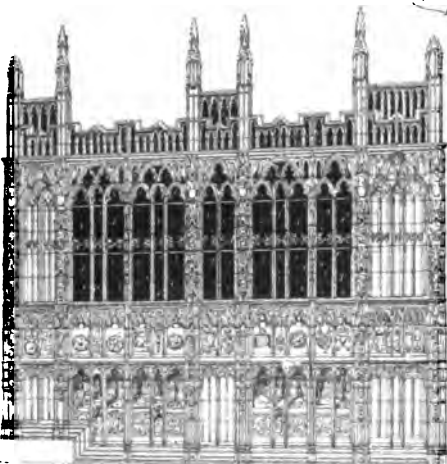
A ROODLOFT WAS A GALLERY OVER THE SCREEN SEPARATING THE CHOR OR CHANCEL FROM THE NAVE. IT WAS CONVENIENT FOR LIGHTING CANDLES, ETC., IN CONNECTION WITH THE IMAGES, & WHICH BELONGED TO IT, NOT MORE IN USE BEFORE THE 14TH CENT.



PARCLOSE SCREEN, GEDDINGTON CH., NORTHANTS.

A PARCLOSE WAS AN ENCLOSURE, SCREEN, OR RAILING TO PROTECT A TOMB, TO SEPARATE A CHAPEL FROM THE MAIN BODY OF A CHURCH, OR TO FORM THE FRONT OF A GALLERY, ETC.

A CHANTRY WAS A CHAPEL OR SEPARATE PART OF A CHURCH ENDOWED FOR THE PURPOSE OF THE DAILY OR FREQUENT SAYING OF MASS ON BEHALF OF THE FOUNDER AND THOSE WHOM HE MIGHT NAME. IT WAS OFTEN ONE OR MORE BAYS OF AN AISLE ENCLOSED BY A SCREEN. ABOUT THE MIDDLE OF THE 12TH CENT. IT WAS CUSTOMARY TO ENDOW CHANTRIES AT PARTICULAR ALTARS. THE FOUNDING AND ENDOWING OF PRIVATE CHANTRIES WAS A COMMON PRACTICE AMONG THE WEALTHY CLASSES PREVIOUS TO THE REFORMATION. THEY WERE MOST NUMEROUS IN ABBEYS & CATHEDRALS, WHERE IT WAS A PRIVILEGE TO BE SURED, &

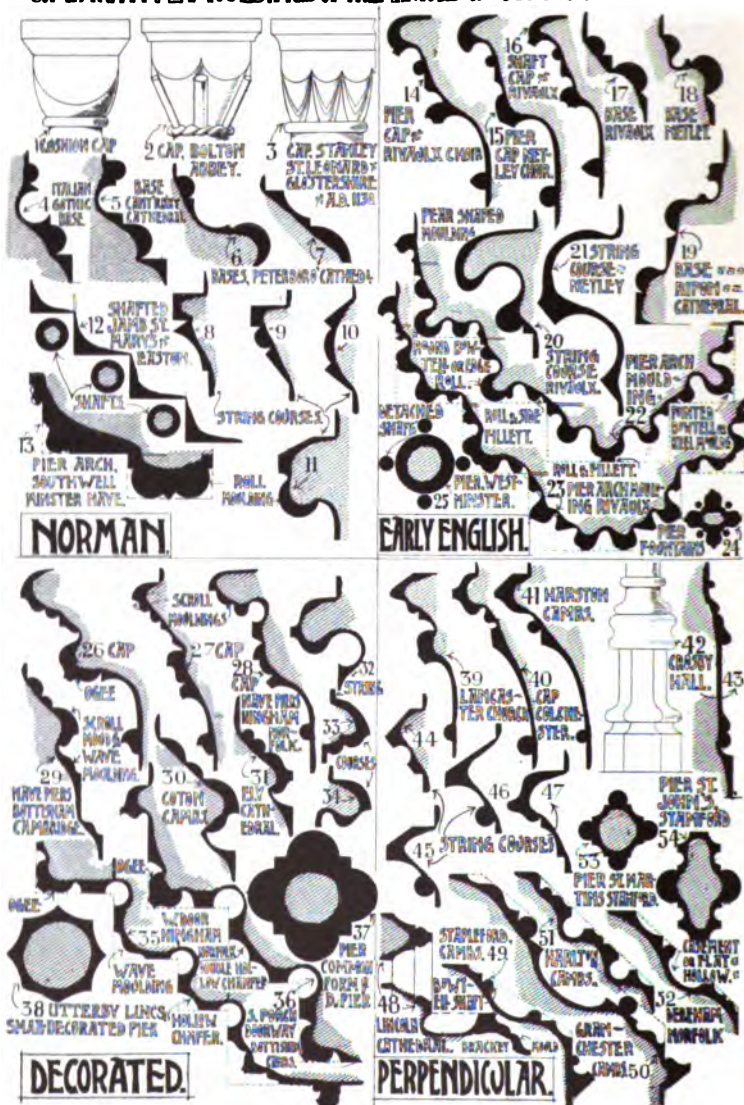


PRINCE ARTHUR'S CHANTRY, WINCHESTER CATHEDRAL.

CHANTRY (CONTINUED) WHERE INTERMENT WAS NOT EASILY OBTAINED EXCEPT BY SOME BENEFICIAL OFFERING. IN MOST ENGLISH CATHEDRALS MANY CHANTRY CHAPELS WERE ACTUALLY EXTERNAL ADDITIONS TO THE ORIGINAL BUILDING; OTHERS WERE INDEPENDENT STRUCTURES WITHIN THE CHURCH. THE CHANTRY CHAPEL & SEPULCHRAL MONUMENT TO ARTHUR TUDOR, PRINCE OF WALES, SON OF HENRY VII. (B. 1486, D. 1502) IS AN EXAMPLE OF THE LAST MENTIONED. IT WAS ERECTED IN 1504. THE WHOLE SURFACE, EXTERNALLY & INTERNALLY, IS COVERED WITH TRACERY & SCULPTURED ORNAMENTS, & THE ROOF IS A FINE SPECIMEN OF FAN VAILING.

ENGLISH GOTHIC ORNAMENT. I.

COMPARATIVE MOULDINGS OF THE PERIODS OF GOTHIC ARCHITECTURE



Windows (Nos. 137 and 142) are large, and divided by mullions into two or more lights. Tracery at first consisted of geometric forms, as in the cloisters of Salisbury, the choir clerestories of Ely, Lincoln, and Lichfield, and the nave of York. In the latter part of the period it was "flowing" in character as in the choirs of Ely (No. 137 F) and Wells.

The cusps, which in the Early English style were often planted on, in this period were cut out of the stone forming the tracery.

Doorways (No. 143) are ornamented with engaged shafts, and have jambs of less depth than in the Early English style.

Arches were formed by being struck from the points of equilateral triangles, or even of lower proportion (No. 299 i). The ogee arch (No. 299 v) was also used.

The enlargement of clerestory windows proceeded *pari passu* with the diminution in height of the triforium (No. 137 F).

D. **Roofs.**—These are of moderate pitch, and sometimes have open framing, of which Eltham Palace and S. Etheldreda, Ely Place, Holborn, are good examples. (Vaulting, see page 287 and No. 112.)

E. **Columns.**—Piers are sometimes diamond-shaped on plan, with engaged shafts (No. 146). Small shafts, surrounding and attached to a central column, were a development from the Early English.

The capitals, when moulded, are similar to those in the Early English style, but not so deeply undercut (No. 146). When carved, the foliage is more naturalistic, and resembles the leaves of the oak, ivy, maple, or vine (No. 148 G).

F. **Mouldings.**—Hollow mouldings are ornamented with the ball-flower (No. 147 c), which is specially characteristic of the style, other mouldings being shown on Nos. 143 and 146.

Cornices and dripstones often have their deep hollows filled with foliage and carving, and are ornamented with crockets (No. 147 K).

Dripstones are finished with carved heads or grotesques, as at Cley Church, Norfolk (No. 143).

"The carved angels, ever eager eyed
Stared, where upon their heads the cornice rests,
With hair blown back, and wings put crosswise on their breasts."

KEATS.

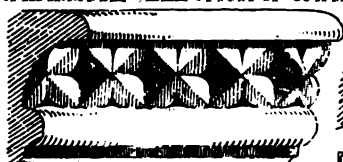
Base mouldings to walls are strongly marked, as seen in the exterior of Lincoln (No. 125).

G. **Ornament.**—Carved foliage in this period is generally naturalistic, and consists of seaweed, ivy, oak, and vine leaves, and the well-known tablet flower (Nos. 147 and 148).

Stained glass led to a great extension of window openings, and the development of tracery. In itself it lost the mosaic character

ENGLISH GOTHIC ORNAMENT. II.

COMPARATIVE SELECTION OF GOTHIC ORNAMENTS IN DIFFERENT PERIODS



(A) E.E. DOG-TOOTH



D. 4 LEAVED
(B) FLOWER.



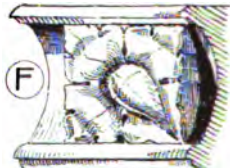
(C) D. BALL FLOWER.



D. TABLET FLOWER



(E) P. VINE LEAF & GRAPES



P. CORNICE FLOWER.



P. TUDOR-FLOWER CRESTING. FROM HENRY VII CHAPEL



(H) P. TUDOR ROSE.



(J) E.E. CROCKET

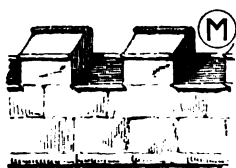
FROM SALISBURY CATHEDRAL



(K) D. TYPICAL CROCKET



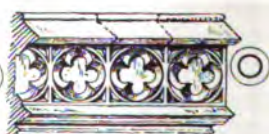
(L) P. CROCKET
FROM SOLIHULL
WARWICKSHIRE.



(M) E.E. ST. MARY'S, BEVERLEY



(N) D. ST. MARY MAGDALENE.
OXFORD.



(O) P. ST. PETER'S, OXFORD.

and became more translucent, the pieces being larger, and lighter in tone. The subjects portrayed became of more importance, and there was a loss in the general decorative effect of the interior, but the glass in itself gained in value and expression.

“The deep-set windows, stained and traced,
Would seem slow-flaming crimson fires.”

Fittings, more especially in wood, as screens, choir stalls, pews, and pulpits, began to acquire character and importance.

Shrines and tombs in masonry are elaborate and beautiful adjuncts to the interiors of the cathedrals and large churches, and the crockets and finials to pinnacles and canopies increased in importance and gave additional richness to buildings of this period (Nos. 143 D, 147 K).

Examples of a decorated font, piscina, tabernacle and sedilia, are shown on No. 144, a brass eagle lectern on No. 145, and a gable cross, finial and boss on No. 149.

THE PERPENDICULAR STYLE.

also known as the Rectilinear, Late Pointed, Lancastrian or Fifteenth Century Style, comprises the reigns of Richard II., 1377-1399, Henry IV., 1399-1413, Henry V., 1413-1422, Henry VI., 1422-1461, Edward IV., 1461-1483, Edward V., 1483, Richard III., 1483-1485, Henry VII., 1485-1509, Henry VIII., 1509-1547, Edward VI., 1547-1553, Mary, 1553-1558.

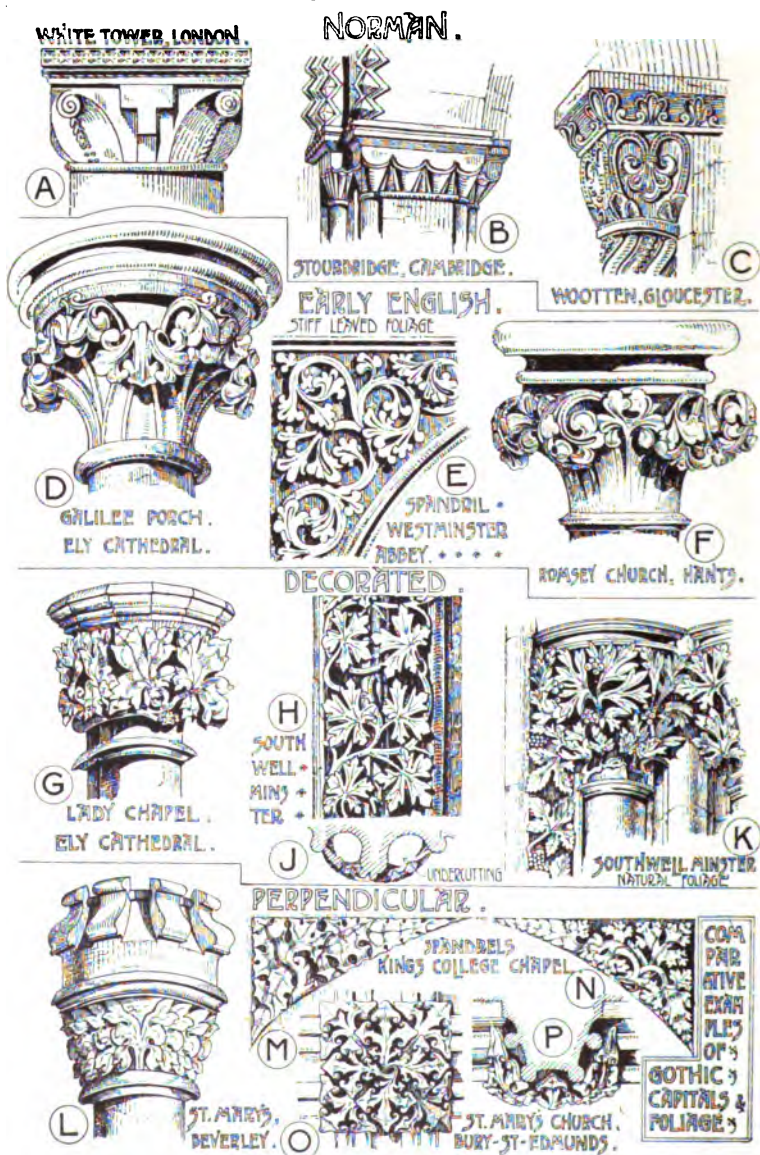
The general appearance varies much in earlier and later work, the latter being overladen with panelling, the main lines in a perpendicular direction predominating.

The windows, owing to their immense size, were strengthened by transoms in tiers (Nos. 137 G and 142), by primary and secondary mullions, and, in some great east end windows, by an inner structure forming a gallery across the window, as at York. The triforium practically disappeared owing to height of nave arcade and flatness of aisle roofs, the clerestory and aisle windows being of great size.

The architecture of the last four reigns is frequently known as “Tudor” architecture (page 356).

In *London* the principal examples are:—Henry VII.’s Chapel (Nos. 127, 128 and 129) (a most perfect example), the southern and western portion of the cloisters of Westminster Abbey, S. Margaret, Westminster, Porch (with vaulting) S. Sepulchre’s Church, Holborn, the Savoy Chapel in the Strand, Westminster Hall, and Crosby Hall, London.

ENGLISH GOTHIC ORNAMENT. III.
COMPARATIVE EXAMPLES OF ENGLISH
GOTHIC CARVED FOLIAGE.



In the *Provinces* the principal examples are:—The west fronts of Winchester, Gloucester, and Beverley; S. George's Chapel, Windsor (Nos. 70 L and 133), Sherborne Minster, and King's College Chapel, Cambridge (No. 70 M).

“This immense and glorious work of fine intelligence.”

WORDSWORTH.

Other examples are in the Cathedrals of Canterbury (nave), York (choir), Gloucester (transept, choir, and cloisters), Winchester (nave remodelled) (Nos. 124, 137 G), and the Beauchamp Chapel at Warwick; towers at Gloucester and Canterbury, and many of the colleges of Oxford and Cambridge (page 324), and numerous mansions throughout the country.

A. Plans.—Owing to the great building era that had preceded this period, ecclesiastical work consisted mostly of restorations or additions. In church planning there was a decrease in the size of the piers, and a tendency to throw all pressures upon the buttresses, which have often great depth.

Towers are numerous and important, and were generally erected without a spire, as the Bell Tower, Evesham (1533). When a spire occurs, it rises behind a parapet, as at S. Peter, Kettering, Northants (No. 140 F).

(The plans of castles and houses have been referred to on pages 318 and 322).

B. Walls.—These were profusely ornamented with panelling (Nos. 128, 137 G), resembling tracery of windows, as at Henry VII.'s Chapel, which may be taken as the most elaborate specimen of the style.

The use of flint as a wall facing, for panels in conjunction with stone tracery, in the counties of Norfolk and Suffolk, was common.

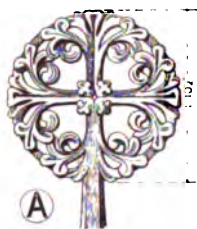
Parapets are embattled or panelled (No. 147), and often very rich, as at Merton College, Oxford.

Buttresses project boldly, being sometimes deep enough in projection to allow of a chapel being placed between, as at King's College, Cambridge. They are also panelled with tracery, as at Henry VII.'s Chapel (No. 128), and are crowned with finials (Nos. 124 D, E, and 128), which are often richly ornamented with crockets.

Flying buttresses are common and are often pierced, as at Henry VII.'s Chapel (No. 128).

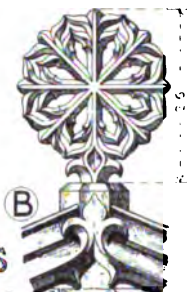
C. Openings.—Arches in the early period inclose an equilateral triangle (No. 299); they were afterwards obtusely pointed, or struck from four centres (Nos. 133 and 299), sometimes inclosed in a square hood-moulding above the head (No. 143),

ENGLISH GOTHIC ORNAMENT. IV.



GABLE CROSSES

E.E. HIGHAM FERRERS



D. HASLINGFIELD CH.



P. STOKE FERRY CH.



BLOXHAM CH. OXON.



FINIALS

E.E. LINCOLN C.



D. WINCHESTER CATH.



STONE PENDANT.

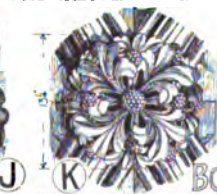
P. YORK MINSTER.



P. ALL-SAINTS, EVESHAM



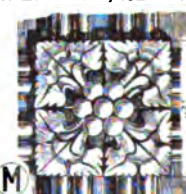
E.E. LINCOLN CATH.



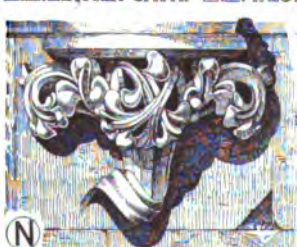
E.E. WESTMINSTER A.



D. SOUTHWELL M.



P. ST. MARY'S CHURCH, BURY ST EDMUNDS.



E.E. BRACKET: ST ALBANS ABBEY



P. PASTON CH., NORFOLK.



END VIEW

the spandrels thus formed being filled with tracery or carving (No. 148 M, N).

Windows consist mainly of mullions producing a perpendicular effect, hence the name of the period. The earliest are probably those at Winchester Cathedral (No. 124), executed under William of Wykeham, and having mullions continued vertically their whole height (Nos. 137 G and 142), stopping against the main arch, and strengthened by horizontal transoms. In many cases they are of enormous size, converting the west end into a wall of glass, as at S. George's Chapel, Windsor (No. 133), the east window at Gloucester (38 feet wide by 72 feet high), and King's College Chapel (No. 142 O).

Doorways were generally finished with a square label over the arch, and the spandrel filled with ornament, as shown in the doorway of Merton College, Oxford (No. 143 J).

Lofty clerestories are general, and the space of the triforium (Nos. 124 F and 137 C) is occupied by panels, as at S. George's Chapel, Windsor, or by niches for statuary, as at Henry VII.'s Chapel.

D. Roofs.—Open timber roofs of low pitch and of the hammer-beam construction abound; they were often richly ornamented with carved figures of angels, and with pierced tracery (No. 113), many examples existing in Norfolk. The roof of Westminster Hall (No. 113 H), erected in 1399, covers an area of nearly half an acre, being one of the largest roofs unsupported by pillars in the world. The later roofs in the style became nearly flat (Nos. 70 J and 133).

Fan vaulting (No. 112) is characteristic of the later periods (page 288), Henry VII.'s Chapel (No. 129), King's College Chapel, Cambridge, and S. George's Chapel, Windsor, as well as the vaults of the central towers of Canterbury and Gloucester Cathedrals, are well-known examples.

E. Columns.—Piers (No. 146) are generally oblong on plan, and placed diagonally with their greater dimension north and south, caused by the vaulting shaft being taken up from the ground, on the front of the pier and not between the arches.

The characteristic pier consists of four circular shafts connected by hollows, and with two fillets, these mouldings being carried round the arch.

Capitals are sometimes polygonal on plan, and few have the abacus and bell perfectly defined, the mouldings being weaker and less effective (No. 146). Carved capitals have foliage of conventional character, shallow and square in outline (No. 148 L).

Bases to piers are often polygonal on plan and a typical moulding is the "bracket" mould (No. 146¹⁴).

F. Mouldings.—These were arranged on diagonal planes (No. 146), being wide and shallow, and often large and coarse.

Pier mouldings are often continued up from the base, and round the arch without the intervention of capitals.

Crestings occur along the top of cornice mouldings (No. 147), and diminutive battlements along the transoms of windows.

G. **Ornament.**—Canopies are often of ogee character, enriched with crockets (No. 128).

Ornaments and sculptured foliage, usually conventional in character, are shown in Nos. 147 and 148. The special ornaments of the period are the Tudor rose, the portcullis, and the fleur-de-lis, all of which were used unsparingly (see Henry VII.'s Chapel) (No. 128), especially as ornaments in square panels.

Wooden chancel screens are very numerous, the upper part being divided by mullions, supporting tracery, and the whole was elaborately treated with panelling, niches, statues, and pinnacles; also with the Tudor flower cresting (No. 147 G).

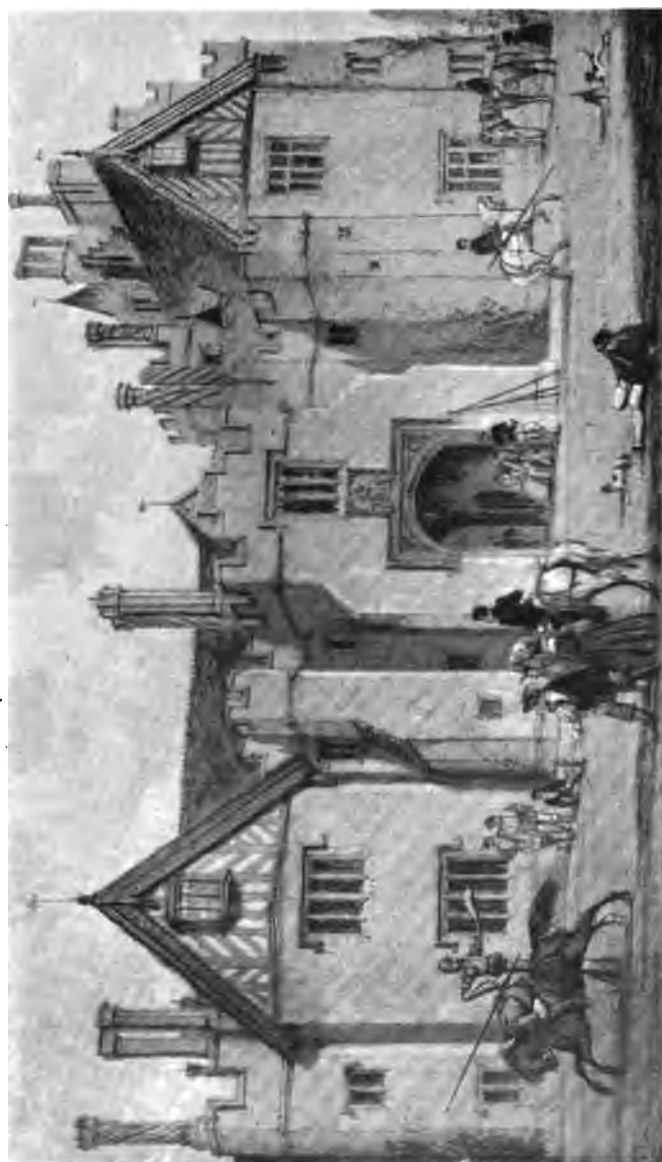
The misereres under the choir-stalls of the period were carved with delicate foliage, grotesques, and flowers, and the bench ends with poppy-heads (No. 149 O, P).

The tendency was to obtain ornamental *motifs* in decoration, by the application of features on a small scale, the tracery of windows being repeated on the walls as blank panelling (Nos. 128, 133, and 137 G), and battlements being carved along the cornices. The golden tinge produced by silver stain, used along with white glass, gave contrast to the painted canopies of architectural character usually inclosing single figures. In very late examples, as at King's College, Cambridge, gorgeousness of coloring exists with great confusion of form and subject, the general design becoming more pictorial, and perspective being introduced, thus breaking away from the conditions imposed by the material. This return to color, however, prevented any such completeness of one tone effect, as in the early work. Color decoration was freely employed on roofs, screens, pulpits, and other fittings, as in the churches of Norfolk, Suffolk and elsewhere.

Examples of a Perpendicular font, piscina and sedilia are shown on No. 144; a pew-end, pulpits, a rood-loft, parclose-screen and chantry on No. 145; and a gable cross, sanctus bell, finial, pendant, boss, and poppy-heads on No. 149.

CONCLUSION.

The various phases of English architecture from the time of the Romans to the reign of Henry VII. have been dealt with. In the fifteenth century the Renaissance of literature in Italy was taking place, and it became the fashion to read the Latin authors. Architecture, painting, and sculpture followed in the train of literature, and the generation that wrote and spoke the Latin tongue desired to build in the style of ancient



COMPTON WYNVATES, WARWICKSHIRE.

Rome. The Revived style naturally originated in Italy, because there the Gothic style had never, at any time, taken a very firm hold, and because of the precedent afforded by the numerous Roman ruins. From Italy it spread to France and England; and the special forms it took, in these countries, will be considered under the head of Renaissance architecture. It is exemplified in the more or less debased but picturesque styles of each country, effected by Renaissance details being grafted on to the native Gothic style. **Tudor** architecture (page 349) is the style prevalent during the reigns of Henry VII., Henry VIII., Edward VI. and Mary, in which the influence of the Renaissance movement is noticeable, for it is the work of those trained in Gothic art, but probably under the direction of a designer familiar with the new features of the Renaissance, and in some examples the designs for the details and mouldings would seem to have been made by a foreign artist. The Tudor style was followed by the **Elizabethan** and **Jacobean** styles, described under English Renaissance (page 551), in which may be traced the increased influence of the old Roman architecture, until the Early Renaissance architecture, finally shaking itself clear of incongruities, developed into the Anglo-Classic or Later Renaissance of Inigo Jones, and Sir Christopher Wren. The process, however, was slow, and Gothic structures, more or less debased, were erected late into the sixteenth century.

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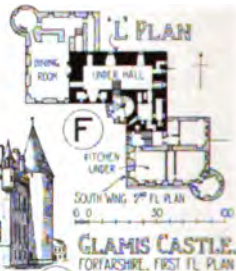
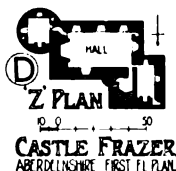
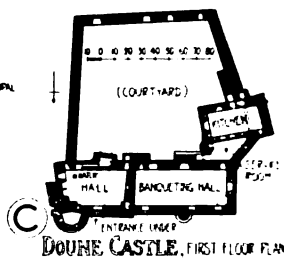
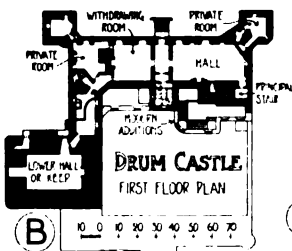
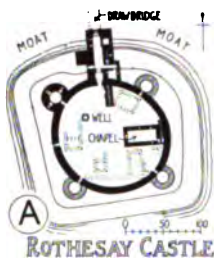
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Note.—A careful study of the buildings themselves is necessary to appreciate thoroughly the progress of the style, and many being within the reach of the student, measured drawings and sketches should be made of these, which will impress the different features on the mind more thoroughly than study solely from books.

In London, besides the examples already mentioned after each period, an important collection of architectural casts of each period can be seen at the Royal Architectural Museum, Tufton Street, Westminster, the Victoria and Albert Museum, and the Crystal Palace.

EXAMPLES OF SCOTTISH ARCHITECTURE



THE SERIES OF CASTLES & MANORIAL HOMES IN SCOTLAND, FROM THE 15TH TO THE 17TH CENTURY, FORMS AN INDEPENDENT CHAPTER IN THE GENERAL HISTORY OF SCOTTISH ARCHITECTURE. THE STYLE HAS A NATIONAL CHARACTER OF ITS OWN & MANY CHARACTERISTIC FEATURES. IT IS DIVIDED BY MACGIBBON & ROSS INTO 4 PERIODS:

FIRST PERIOD (15TH CENTURY) CASTLES WERE ERECTED ON THE NORMAN MODEL WITH LOFTY WALLS OF ENCINTRE, BUILT OF STONE & MORTAR & USUALLY OF THE PLAINEST DESCRIPTION WITH TOWERS TO DEFEND THE COURTYARDS.

SECOND PERIOD (16TH CENTURY) THE CASTLES HAVE A TOWER SIMILAR TO THE NORMAN KEEP WITH A BARRIKEN (COURTYARD) SURROUNDED WITH A WALL ATTACHED THERETO. THE L-PLAN FIRST INTRODUCED. ENCLOSING WALL SMALLER & LESS EXTENSIVE THAN IN 15TH CENTURY. ORNAMENTAL FEATURES RARE.

THIRD PERIOD (1600-1642) THE KEEP-PLAN STILL USED. IN MANY INSTANCES A WING, ADDED AT ONE ANGLE, FORMING L-PLAN, & THIS MODIFIED BY INSERTING IN THE RE-ENTERING ANGLE A TOWER CONTAINING A STAIRCASE. IN LARGE CASTLES THE BUILDINGS WERE ARRANGED ROUND WALL OF ENCINTRE FORMING COURTYARD IN CENTRE. MORE ORNAMENTAL THAN IN PREVIOUS PERIOD.

FOURTH PERIOD (1642-1700) ANCIENT FORMS OF CONSTRUCTION FOR DEFENSIVE PURPOSES MODIFIED & TRANSFORMED INTO ORNAMENTAL FEATURES INCLUDING ELABORATE CORBELLED ANGLED TURRETS WITH CONICAL TOPS, LOFTY ROOFS WITH DORMERS, FINIALS & CLUSTERED CHIMNEYS. RENAISSANCE FEATURES AND ORNAMENT GRADUALLY SUPERSEDED THOSE OF THE NATIVE STYLE, BUT THE TRADITIONAL PLANS WERE FREQUENTLY USED IN SMALLER BUILDINGS. THE KEEP, L, Z, T & E PLANS STILL USED.

GRANGE PARK, BO'NESS

SCOTTISH ARCHITECTURE.

Architecture in Scotland followed on much the same lines as in England, until the middle of the fifteenth century, when it took a more national turn. Inspiration was largely drawn from abroad, especially from France, with which country there was a close political connection, causing a picturesque and interesting development on French lines, especially after Robert Bruce (A.D. 1306-1329) finally secured the independence of Scotland. In Melrose Abbey is to be seen the influence of French and Spanish Art, while in Rosslyn Chapel Portuguese influence is apparent, for it is very similar in detail to the Church of Belem near Lisbon. The most important Cathedrals are those of Edinburgh (S. Giles), Glasgow (No. 120 D) (having no transepts but a famous crypt), S. Andrew, Kirkwall, Dunblane, Aberdeen and Elgin, and the Abbeys of Kelso, Melrose, Dunfermline, Holyrood and Dryburgh are the best known. In these the lancet window, either singly or in groups, was used long after it had been discontinued in England, while in the later period the Flamboyant tracery of French Gothic was followed in preference to the Perpendicular style of English Gothic.

The Pele or bastle houses were of the tower class, with projecting turrets at angles, and consisted of single rooms one over the other, accessible by "turnpike" or winding stairs.

The "corbie" or "crow-stepped" gable was used in preference to the straight-sided gable of England. In vaulted roofs a continuous barrel vault with surface ribs was occasionally employed.

Scotland is specially rich in castles and mansions of the Gothic period, which possess distinctive character, and in which stone was almost universally employed. In these a picturesque use of circular towers, vast height of walls, treated in a simple, and almost bare, manner, and the planning of the buildings at different angles, are characteristic.

On No. 151 is given a series of plans and sketches of different types of buildings showing the national character of Scottish Architecture.

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IRISH ARCHITECTURE.

Celtic Architecture.—The chief interest lies in the remains of the Celtic Architecture erected from the sixth century to the English Conquest in 1169.

The early Churches were extremely small, and appear to have been used principally as oratories, where the priest could officiate, and to which a small square chancel was attached. The naves were covered with barrel vaults, over which was a hollow chamber called an "overcroft," covered by a steep pitched roof, generally of stone, as at Cormac's Chapel, Cashel (A.D. 1127-1134) (No. 152), probably the finest example in Ireland, S. Kevin's Kitchen, Glendalough, and other places. Windows appear to have been unglazed.

The *Monasteries* form another class of building, and the Rev. Prof. Stokes refers to a group of seven small churches found at Inchleraun, similar to some in Asia Minor and elsewhere. The monastic cells at the Skellings are peculiar, being of beehive form, with domed stone roofs in horizontal courses, as in the early work in Greece at Mycenæ (No. 15) and elsewhere.

The *Round Towers* generally detached and placed near the Church, have been a subject of much controversy, but the generally accepted view, originated by Mr. George Petrie, is that they were used as treasure houses, refuges, bell towers, and for displaying lamps at night time, or were probably erected as symbols of power. They taper slightly towards the summit and are crowned with either a conical (No. 152 G) or battlemented covering (No. 152 J). The entrance doorway was several feet from the ground.

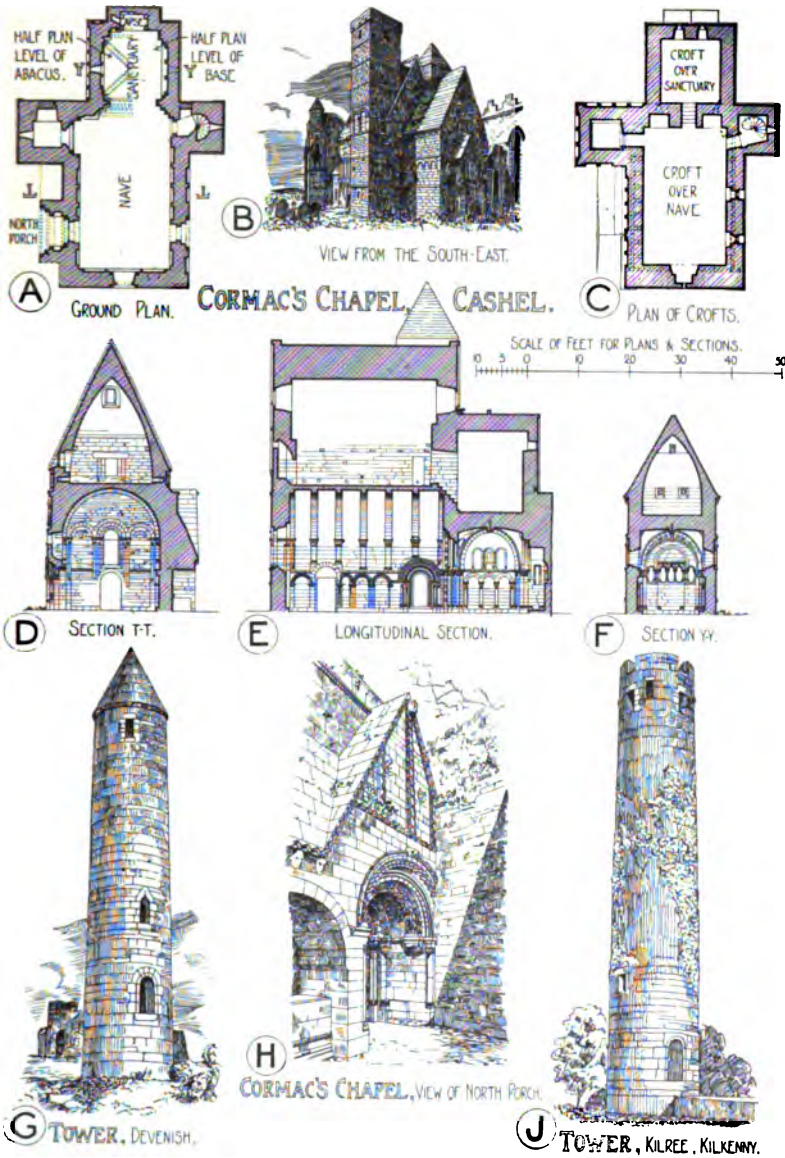
Mediæval Architecture.—Within the English domain the influence of Continental art was felt during the Middle Ages, but few monuments of importance were erected. The Cathedrals of Dublin (No. 120 A), Kildare and Cashel, were the most important, but the absence of parish churches is remarkable. The Monasteries and Friaries (principally Franciscan) are small, usually having a nave and choir, probably some time divided by a wooden screen, a transept and southern aisle, cloisters, and a tower, which was added in the fifteenth century. The best known are those at Cashel, Kilconnel, and Muckross.

Owing to the disturbances in Elizabethan times there is no domestic architecture of note, but the earlier castles built by the Chieftains are interesting.

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EXAMPLES OF IRISH ARCHITECTURE.



FRENCH GOTHIC.

(See page 246 for French Romanesque.)

"Graceful, grotesque, with ever new surprise
Of hazardous caprices sure to please,
Heavy as nightmare, airy, light as fern,
Imagination's very self in stone."—LOWELL.

I. INFLUENCES.

i. **Geographical.**—France may be divided architecturally, into North and South, by the River Loire, to the north of which were settled the Franks, while to the south were settled the Romance race. (See page 248.)

ii. **Geological.**—The excellent building stone found near Caen aided in the development of the northern Gothic style, and in the mountainous districts of Auvergne the use of colored volcanic material gave a decorative character to the buildings of that district. (See pages 246, 248.)

iii. **Climate.**—(See page 246 in French Romanesque.)

iv. **Religion.**—Religious zeal, which resulted in the erection of so many grand cathedrals, was manifested also in the Crusades, Louis IX. leading the fourth (1248–1254). The clergy as a corporate body reached the summit of their power and influence, such being largely due to their championship of justice and their adhesion to the royal cause. The Abbé Suger, the minister of Louis VII. (1137–1180), who may be styled the Cardinal Wolsey of the period, exercised much influence on church building. Rome remained the controlling spirit, though local liberties were not all swallowed up in centralization. The introduction of various special cults gave fame to certain chapels and shrines, which as pilgrimage centres acquired both wealth and importance, which are expressed in the richness of their architectural treatment.

The zeal with which the urban populations set about building cathedrals has been compared by Viollet-le-Duc to the commercial movement which has covered Europe with railways.

The crusade against the Albigenses (see below) was a movement against Christians who had been declared by the Pope to be heretics, and the next stage was to carry on a religious war against all who were considered to be enemies of the Papacy.

v. Social and Political.—Previous to the commencement of this period (A.D. 987), France was inhabited by races of people who, widely differing from each other, and governed by different rulers, were at constant war.

In continuation of the Romanesque style, the Gothic architecture of France, varies considerably in different parts of the country, such being due to political environment, to the separation of the various parts by different languages and customs, and to the Roman remains, which naturally gave a classical tone to any new architectural development in the southern districts where they were principally found.

vi. Historical.—The real beginning of the modern kingdom of France may be said to commence with Hugh Capet, who was chosen king in 987, with the title "King of the French."

Philip Augustus (1180–1223) after declaring John, King of England, to have forfeited all the fiefs he held of the French crown, proceeded to conquer Normandy, and all John's possessions in Northern Gaul, with the exception of Aquitaine. Philip next defeated the combined forces of English, Germans, and Flemings at the Battle of Bovines in 1214. Owing to the power of France at this time, the English barons offered the crown of England to Philip's eldest son Louis, to whom, as Louis VIII., the French crown afterwards passed. Louis IX., called S. Louis on account of his goodness, largely increased the power of the crown, but died at Tunis in 1270, when setting out on his last crusade.

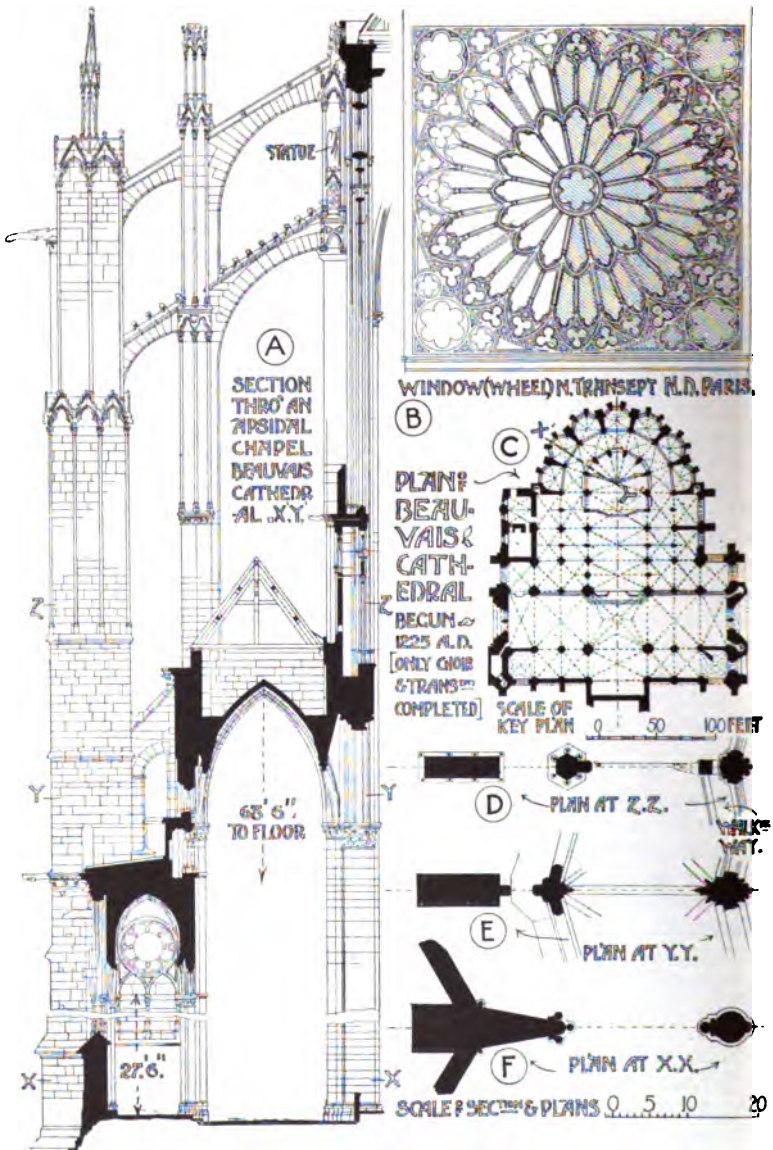
As a consequence of the crusade preached against the Albigenses by Pope Innocent, the dominions of the Counts of Toulouse were conquered by S. Louis in 1229, France thus obtaining a sea-board on three seas, viz:—the Mediterranean, Atlantic, and the English Channel.

The development and consolidation of the French kingdom thus corresponds with the great cathedral-building epoch of the thirteenth century.

2. ARCHITECTURAL CHARACTER.

The main idea or prevailing principle of Gothic architecture in France was the same as in other parts of Europe (page 268), the vertical and aspiring tendency being accentuated by great internal height, high-pitched roofs, numerous spires (with crockets), pinnacles, flying buttresses, and the long lines of the tall traceried windows (Nos. 154, 158, 160, 161 and 162).

FRENCH GOTHIC EXAMPLES. I.



FRENCH GOTHIC.

COMPARATIVE VIEWS
OF MODELS OF
CONTINENTAL CATHEDRALS.



A. AMIENS.



E. STRASBURG.



B. ROUEN.



C. ANTWERP.



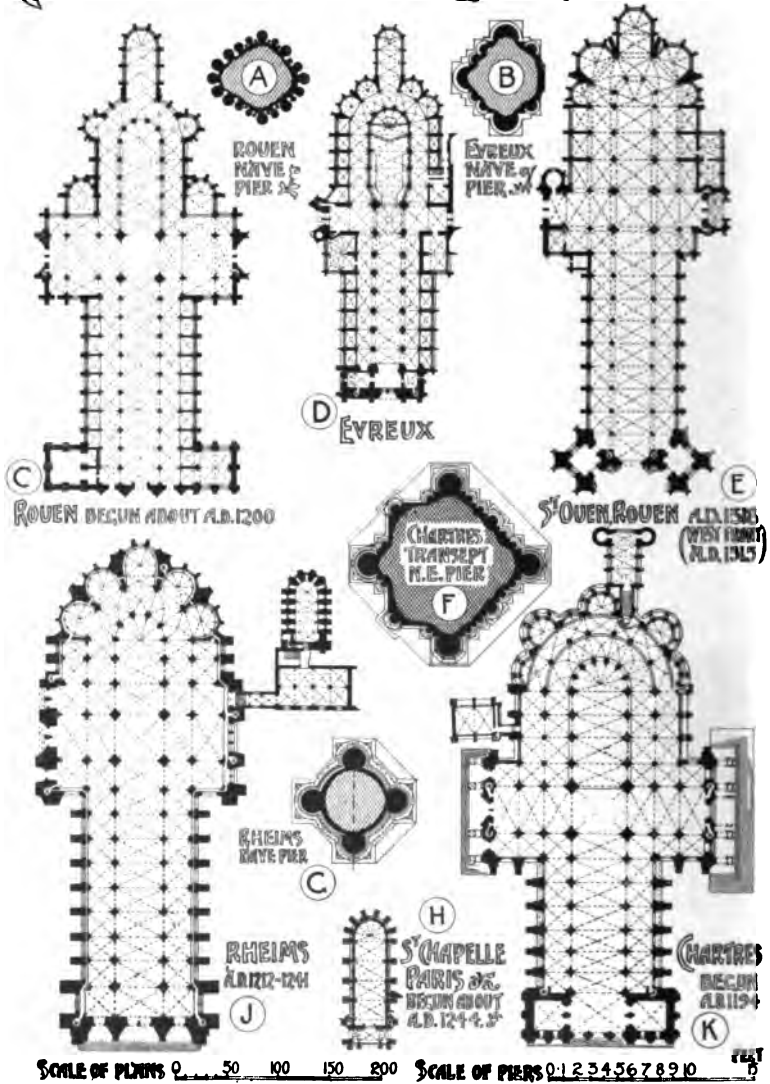
D. NÔTRE DAME,
PARIS.



F. BEAUVAIS.

FRENCH GOTHIC EXAMPLES. II.

COMPARATIVE PLANS & FRENCH GOTHIC CATHEDRALS



FRENCH GOTHIC.



156.

NÔTRE DAME, PARIS.
West Front.

The style is divided by M. de Caumont into:—

- (1.) Primary (Gothique) or thirteenth century.
- (2.) Secondary (Rayonnant, from the characteristic wheel tracery of the rose windows) or fourteenth century.
- (3.) Tertiary (Flamboyant) or fifteenth century.

It is proposed, however, on account of space, to consider the subject as one continuous development—as, in fact, it really was—and to compare it where necessary with English Gothic.

3. EXAMPLES.

ECCLESIASTICAL ARCHITECTURE.

CATHEDRALS.

All the great cathedrals, numbering about 150, were erected in the first half of the thirteenth century, principally by funds provided by the laity, and not as parts of monastic establishments, and in consequence vary considerably in plan and arrangement from English cathedrals.

The French cathedrals, in situation and surroundings, are also in marked contrast (page 299) with English examples (Nos. 121 and 162), and are referred to by Browning, who talks of that

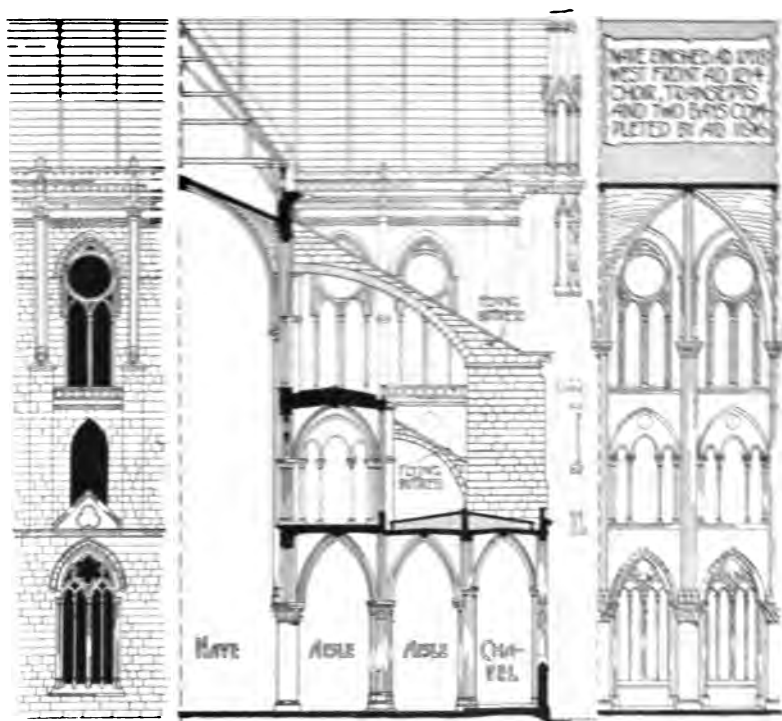
“Grim town,
Whose cramp'd, ill-featured streets huddled about
The minster for protection, never out
Of its black belfry's shade and its bells' roar.”

Nôtre Dame, Paris, 1163–1214 (Nos. 153 B, 154 D, 156, 157 and 158), is one of the oldest of French Gothic cathedrals. The plan is typical in having a wide central nave with double aisles, transepts of small projection (being practically in a line with the side aisles), and the *chevêt* arrangement with its double aisles and exterior chapels. The west front (No. 156) is the grandest composition in France, the western gable to the nave being hidden by a pierced screen, connecting the two western towers. The three deeply recessed western portals, the range of statues in niches, and the circular wheel window, are all characteristic features.

The lateral façades are spoilt by chapels having been placed between the buttresses.

Bourges Cathedral (commenced A.D. 1190) is chiefly remarkable as possessing no transepts, for its shortness in comparison with its width, and its general resemblance in plan to Nôtre Dame, Paris. It has five aisles, in three different heights, the central being 117 feet, resembling Milan Cathedral (No. 176), though in a different gradation. The vast nave of extreme height and with length unbroken by projecting transepts, presents an imposing appearance. The view westwards from

FRENCH GOTHIC EXAMPLES - II. NOTRE DAME PARIS FOUNDATION USED AS BASIS.



EXTERIOR BAY

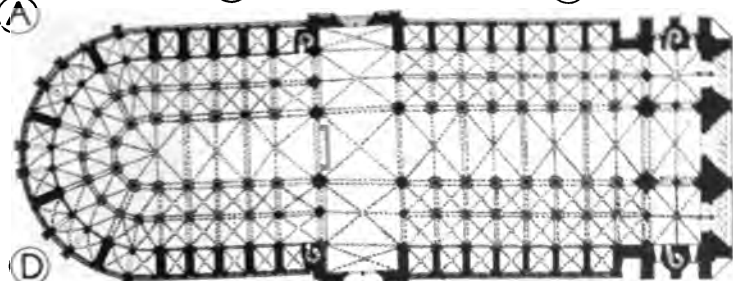
HALF CROSS SECTION

INTERNAL BAY

A

B

C



SCALE FOR FLOOR 0 20 40 60 80 100 120 140 160 180 200 FT. SCALE FOR ELEVATIONS & SECTION 0 20 40 60 80 100 120 140 160 180 200 FT.

FRENCH GOTHIC.



158.

NÔTRE DAME, PARIS
Interior, looking East.

COMPARATIVE PLANS OF ENGLISH AND FRENCH TYPES OF CATHEDRALS

PRINCIPAL MEMBERS:

ENTRANCE LENGTH APPROX. 4.5' @

EXTREME WIDTH OF INTERFERON 205.0

STIKERAMBU

0.16 THYROID HORMONE

TEMPERATURE DIMENSION

EXTREME LENGTH ANTENNA 453

EXTREME WIDTH INTENS 1942

JAMES H. HALL

RESEARCH AND ANALYSIS

THE

REFERENCE TABLE

ALMAVE.

ABLE, C. THOMAS

A. TÖVEK.

E. CHEN.

6. CHART.

H. CHAPPEL.

J. PULPIT.

L. THOMAS.

N. CLAYTON.

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DEVELOPING THE MATHS

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REFERENCE TABLE

A FIVE. A FIVE.

6. TRANSEPT.

A. TOWLER
K. JONES

E. GRAY.
F. LAY CRUEL.

6. CHEVET.

H. CHAPPEL.
J. B. HUNT.

K. PRESTLEY.

L. THANE.

A. GLOISTEN.

159.

50 FEET

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159.

B B 2

FRENCH GOTHIC.



160.

AMIENS CATHEDRAL.

the east end is striking, owing to the picturesque confusion of innumerable flying buttresses, pinnacles, and other features.

Chartres Cathedral (1194-1260) (Nos. 110 E and 155 K) has a plan peculiar in having strongly marked transepts, each crowned with two towers, which with the two western and two contemplated eastern towers would have made eight. The cathedral is remarkable for the fine statuary to the north and south porches (No. 165 A), the rose window to the northern transept, and the flying buttresses of three arches one above the other, the two lower being connected by radiating balusters resembling the spokes of a wheel.

Rheims Cathedral (1212-1241) (Nos. 155 and 161) has a fine plan, the west front having three deeply recessed portals richly ornamented with sculpture, and enclosed with richly ornamented gables. The upper portion has a row of statues in tabernacles carried between the two towers instead of the open tracery arrangement seen in Nôtre Dame. The flying buttresses (No. 141 H) show the arrangement adopted over a double aisle, in which the thrust of the nave vault is transmitted by arches to piers weighted by pinnacles and statuary.

Amiens Cathedral (1220-1288) (Nos. 154, 159 and 160) is generally referred to as having the typical French Cathedral plan, but the side chapels to the nave placed between the buttresses are a later addition. The interior is 140 feet high to the stone vaulting, and the roof of the nave is over 200 feet in height. The western façade somewhat resembles Nôtre Dame and Rheims. The great central *flèche* of timber and lead is shown on No. 165.

Bayeux Cathedral (twelfth century) is remarkable for its twenty-two chapels and immense crypt under the sanctuary, dating from the eighth to the eleventh century.

Coutances Cathedral (No. 162) was erected A.D. 1254-1274, and is specially famous for the excellent design of the two western towers and spires, and the octagonal lantern over the crossing of nave and transepts.

Noyon Cathedral (1157-1228) with a peculiar plan resembling a combination of the German triapsal plan, and the French *chevêt*; **Troyes Cathedral** (1214-fifteenth century), a fine five-aisled example with eastern *chevêt* and rich western façade; **Soissons Cathedral** (1160-1212); **Läon Cathedral** (1150-1200), exceptional in having an English type of plan and group of six towers; and **Rouen Cathedral** (1202-1220), with rich western towers of a later period and iron-central spire, are other well-known early examples.

The **Sainte Chapelle, Paris** (1244-1247), built by S. Louis, in which the space between the buttresses is occupied by windows 15 feet wide and 50 feet high, is often quoted as a typical Gothic structure. The plan (No. 155 H) was in size similar to that of

FRENCH GOTHIC.



161.

RHEIMS CATHEDRAL.
West Front.

FRENCH GOTHIC.



162.

COUTANCES CATHEDRAL.
West Front.

S. Stephen, Westminster (No. 119 L), since destroyed for the rebuilding of Westminster Palace. It has a richly vaulted crypt, and such characteristic French features as the apsidal termination and the high stone-vaulted roof.

Among later examples in the north of France, mostly in the Flamboyant style, are:—

S. Ouen, Rouen (1318-1515), the choir (1318-1339) being contemporary with that of Cologne, **S. Maclou, Rouen** (1432-1500), probably the richest Flamboyant example in France, **S. Jacques, Dieppe** (1350-1440), and **S. Wulfrand, Abbeville** (1488-1534).

In the south of France many buildings were erected during the Middle Ages, differing from these northern cathedrals in plan and design owing to the proximity of Roman buildings.

Albi Cathedral (1282-1512), a fortress church, consists of a large impressive vaulted hall with an apsidal end, and having a series of flanking chapels separated by internal buttresses. It possesses an unrivalled fifteenth century rood screen.

Beauvais Cathedral was originally built 1225-1272, but was partly reconstructed 1337-1347, the transepts being added in the fifteenth and sixteenth centuries. This building was never completed beyond the choir and *chevêt* and the transepts. It has the highest nave vault in France, being 160 feet, and has a nave width of 47 feet from centre to centre of piers.

The **Church of the Cordeliers, Toulouse** (fourteenth century), which was partially destroyed in 1871, was another example of this type, and has some similarity in plan with that of King's College Chapel, Cambridge.

S. Sernin, Toulouse, commenced in 1096 (referred to on page 248), is a five-aisled example, the western portion and many-storied octagonal tower belonging to this period.

SECULAR ARCHITECTURE.

France is especially rich in domestic architecture, and throughout the country are to be found castles, town halls, hospitals, houses, barns, farmhouses, granaries, and other buildings, in which the principles of the Gothic style can be studied.

The **House of Jacques Cœur, Bourges** (1443), is a fine example of the house of a great merchant prince of the period. It is partly built on the town ramparts and has a central courtyard (No. 163), possessing a fine staircase tower.

The **Palais de Justice, Rouen** (1499-1508) (No. 164), is an exceedingly rich specimen of French municipal architecture. The **Château de Pierrefonds**, restored by Viollet-le-Duc, **Mont S. Michel** (Normandy), and the **Château de Blois** (east wing) (1498-1515), are examples of military architecture.

FRENCH GOTHIC.



163. HOUSE OF JACQUES CŒUR, BOURGES.

The south of France has many examples of stone houses, and throughout the country half-timbered houses with plaster filling are still to be seen, as at Rouen, although fire and decay have naturally reduced their number.

Students are often inclined to think that Gothic architecture was confined to ecclesiastical work, but it should be remembered that the style was employed in every building of the period.

4. COMPARATIVE.

FRENCH GOTHIC.

A. Plans (No. 159). — Short, wide, and high. Length about four times the width.

Cloisters rare, except in the south, where richly designed examples are met with.

Transepts have slight projection, as may be seen in the sheet of comparative plans (No. 155).

Side chapels numerous, due to the popular character of the Cathedral for the worship of saints and saying of masses.

The apsidal east end developed into the *chevet* by addition of processional aisle and chapels, but Laon, Dol, and Poitiers are exceptions.

The aisles are sometimes double, as at Nôtre Dame, Paris (No. 157), Amiens, Bourges, Rheims and Chartres.

Two western towers (Nos. 154, 161 and 162) characteristic, the probable reason being that the great height of nave prevented a central tower being effective.

A wooden *flèche* often constructed over the crossing, as at Amiens (422 feet high) (No. 165 B).

Central spires are common in Normandy.

Towers sometimes attempted in groups by placing four at the angles formed by the junction of the nave and transepts, and two at the west end, with central *flèche* only, as at Laon.

Arcading widely spaced and general largeness of parts. Chapter houses never polygonal.

ENGLISH GOTHIC.

A. Plans (No. 159). — Long, narrow, and low. Length about six times the width.

Cloisters frequent, owing to monastic foundation, and characteristic of English Cathedrals.

Transepts have bold projection, and a second eastern transept is found, as at Salisbury and Lincoln.

Side chapels seldom met with, due to the fact that the principal cathedrals were churches belonging to monastic foundations.

The square east end characteristic. The "Nine Altars" at Durham as an east end transept is remarkable.

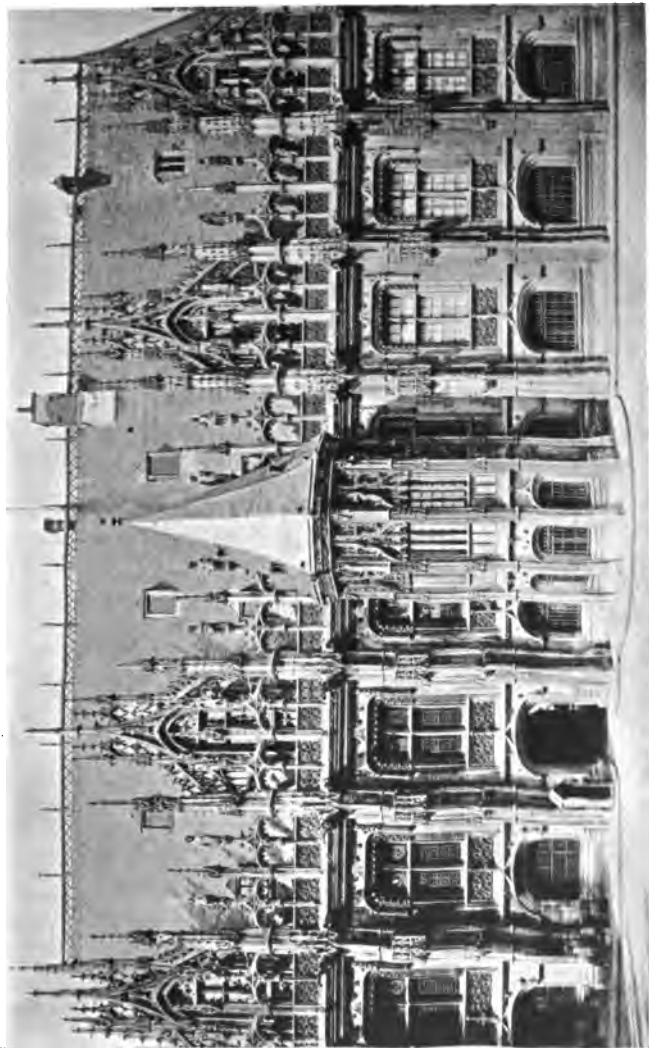
The aisles are nearly always single, Chichester (No. 119 G) and Manchester (No. 119 B) being the only exceptions (page 305).

The central tower the most successful and predominant feature, as at Gloucester (No. 115 H), Hereford (No. 115 F), Rochester (No. 114 E), Salisbury (with spire) (No. 116 A), and Norwich (with spire) (No. 116 D); or combined with one western tower, as at Ely (No. 114 C).

A single western tower is characteristic of parish churches.

Towers frequently arranged as a group of three, viz., two western and one central, as at Lincoln (No. 116 B), Canterbury (No. 116 C), Durham (No. 114 B) and York (No. 115 A).

Arcading closely spaced and general smallness of parts. Chapter houses are often polygonal.



PALAIS DE JUSTICE, ROUEN.

FRENCH GOTHIC.

B. Walls. — Early buttresses were a development from the slight projections of the Romanesque period, or were sometimes semi-circular, especially in the apses of churches. Later buttresses of deep projection have chapels between them (No. 157).

The weatherings to offsets of buttresses are flatter the higher they occur.

Buttresses often nearly vertical, without offsets (No. 153).

Flying buttresses largely employed, being necessary on account of height and width of aisles and naves. They were used with special effect at the east end.

Interiors owe their effect largely to their great height, otherwise they are considerably less ornate than the English examples.

Open tracery parapets are typical (Nos. 164 and 165 C, D).

The characteristic west front is *Nôtre Dame*, Paris (No. 156).

C. Openings. — Doorways elaborate and rich, larger and finer than in England, and deeply set in west fronts, as at *Nôtre Dame*, Paris, Rheims, and Coutances (Nos. 156, 161 and 162).

Windows have much "plate" tracery, the final development in the later period being "flamboyant" tracery.

There is an absence of cusps in late French tracery.

Circular windows in west fronts (Nos. 156 and 161) and transept ends (No. 153 B), with intricate tracery, are special features.

D. Roofs. — These are always steep and ornamented with metal ridges and finials (Nos. 154 and 164).

They are constructed with double timbers of special type to surmount high vaults.

Wooden roofs, treated ornament-

ENGLISH GOTHIC.

B. Walls. — Early buttresses are flat projections. Later ones are much pronounced, and strongly marked with offsets and pinnacles, and were highly ornamented with niches and panelling. Transitional buttresses may be seen at *Salisbury* with curious weathering.

The weatherings to offsets of buttresses are steeper the higher they occur.

Buttresses usually formed with offsets (No. 141).

Flying buttresses are not so prominent a feature because the clerestory is comparatively low, and there are seldom double aisles or *chevêt*.

Interiors owe much to the elaboration of triforium, complex piers, variety of clerestories and richness of vaulting.

Battlemented parapets are typical (No. 147 M).

The characteristic west front is *Wells Cathedral* (No. 115 G).

C. Openings. — Doorways often placed laterally, and provided with a projecting porch, as at *Gloucester*, *Canterbury*, and *Salisbury* (Nos. 115 H, 116 C, 121).

Windows develop on the same lines, but "plate" tracery was seldom used, the final development, specially characteristic of English work, being "Perpendicular" tracery.

Circular windows are not much used in England, although found at *Chichester*, *Westminster Abbey*, *Durham*, and elsewhere.

D. Roofs. — These are of moderate pitch, approaching to flatness in later periods (Nos. 113, 122, 133).

Carpentry was more advanced, and single-framed timbers were used.

Wooden roofs of an ornamental

FRENCH GOTHIC.

ally, not much developed as part of design of interiors.

Coverings of slates were often employed.

Vaults were specially characteristic of the style.

These vaults are usually domical and ridge ribs were rarely employed, very slight development taking place, and intermediate and lierne ribs seldom used (page 288) (Nos. 109 and 112), great height being a characteristic.

Pendants are frequently used in the "flamboyant" period.

The joints of the severies are at right angles or parallel to the wall ribs (No. 158).

E. Columns. — Plain circular nave columns are characteristic, as in *Nôtre Dame*, Paris (No. 165 H), and are due to Roman tradition.

There was a difficulty in bringing down the lines of the vaulting with this type, and clumsy expedients were in use, as when the shafts started just above the square abacus of the arcade columns (No. 158).

In the south is found the square pier with attached three-quarter columns (No. 165, J, K, L).

The mouldings of the pier arches sometimes die into the pillars without capitals.

Capitals with foliage of the Corinthian type lasted well into the style, besides an early application of stiff leaf foliage, and the crocket capital (No. 165 P, Q) was characteristic.

Moulded "bell" capitals without foliage rarely met with, except in Normandy.

The square abacus (No. 165 G, H) derived from the classical feature was preferred.

F. Mouldings. — These are larger in size, of less variety, and not

ENGLISH GOTHIC.

character, as part of design of interiors, highly developed.

Coverings of lead were generally employed.

Vaults were used more in the cathedrals than in parish churches.

The vaults have level ridges and have longitudinal and transverse ridge ribs, which, being of large section, probably due to the influence of carpentry, gave a strong backbone to the vaulting (No. 111).

Vaults, sometimes of wood, as at York and the Cloisters of Lincoln.

Fan tracery vaulting (Nos. 112 and 129) was peculiar to England.

The joints of the severies are parallel to the wall rib, or placed diagonally (No. 111 D).

E. Columns. — The clustered shaft is a special feature, as in *Salisbury Cathedral* (No. 122), and was preferred to circular columns.

The early adoption of attenuated shafts as a continuation of the vaulting ribs being taken as the basis of the pier formation avoided any such difficulty as was met with in France.

The development of moulded piers was characteristic, and their evolution in each period is shown on No. 146.

Capitals of a classic type were only occasionally employed, as in the *S. John's Chapel*, Tower of London (No. 135), early carved capitals usually having "stiff leaf" foliage.

Moulded "bell" capitals were often employed in all periods, and have bold projection, especially in the Early English period (No. 146).

The round abacus (No. 148 D, F, K) was much used, and also the octagonal or polygonal (No. 148 G).

F. Mouldings. — These were bold, rich, and of great variety, and

FRENCH GOTHIC.

so rich as in England, and often were kept some distance from window openings.

Features and details are coarser, less attention being given to these on account of the largeness of scale.

G. Ornament. — Decorative figure sculpture of the highest type was attained, and is particularly seen in the great doorways of the west fronts of *Nôtre Dame* (No. 156), *Amiens*, *Rheims* (No. 161), and in the north and south porticos of *Chartres*, where they are inclosed in niches or tabernacles surrounding the arch in successive tiers.

The carving of such features as gargoyles, finials, crockets and corbels was either of floral forms or of animals and birds, and was of great refinement (No. 165), especially in the South of France.

Stained glass was much developed, and *Chartres* possesses examples which, in a prevailing tone of blue tending to violet, give an idea of the general effect of an interior, according to the intent of the artists of the epoch. Much of the best stained glass has, however, been destroyed.

Color decoration in frescoes and as applied to sculpture seems to have been fully developed, and it would appear that hangings were imitated in painted wall decorations.

ENGLISH GOTHIC.

applied to capitals and pier arches as well as to door and window openings.

Features and details are of great refinement, much attention being given owing to the smallness of scale.

G. Ornament. — Decorative figure sculpture was not carried out so extensively as in France, but the *Cathedrals of Wells* and *Lichfield*, and *Westminster Abbey*, are rich in this respect, the west front of the former being the most complete.

The "dog-tooth" ornament (No. 147 A) is common in early examples of the style.

The carving varies considerably in each of the periods, being conventional in the Early English, naturalistic in the Decorated and again conventional in the Perpendicular.

Stained glass was developed on similar lines as in France, the earlier examples, as at *Canterbury*, being in small pieces heavily leaded, whereas the later examples consist of large figures surrounded with representations of the niches and crocketed canopies as executed by the sculptors.

Color decoration to wall surfaces and sculpture was much employed.

The painted roofs and screens of the Perpendicular period are notable.

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} Historical Novels.

BELGIAN AND DUTCH GOTHIC.

"The darkened roof rose high aloof,
On pillars lofty and light and small;
The keystone that locked each ribbed aisle
Was a fleur-de-lis or a quatre-feuille;
The corbels were carved, grotesque and grim,
And the pillars with clustered shafts so trim,
With base and with capital flourished around
Seemed bundles of lances which garlands had bound."—SCOTT.

I. INFLUENCES.

i. **Geographical.**—The country of the Netherlands lies wedged in, as it were, between the Germanic and Romanic races of the European peoples, thus accounting for the dual influences found in its architectural development, Belgium being under French, and Holland under German influence.

ii. **Geological.**—The district abounds with clay suitable for the making of bricks, and the consequent effect upon the architecture was considerable, being specially noticeable in domestic work, as in the small house façades in the towns.

Stone was used in Brussels Cathedral and other examples, and granite was also available, the cathedral at Tournai being wholly of that material.

iii. **Climate.**—This is similar to that of England, but has greater extremes of heat and cold.

iv. **Religion.**—This was greatly influenced by the religions of France, Germany, and Spain, under whose dominion the Netherlands were at different times.

v. **Social and Political.**—The mediæval architecture of these countries developed with the social progress of the people, the towns with independent municipalities rivalling each other in the arts of war and peace. Many buildings, notably Guildhalls and Town Halls, large in conception and rich in detail, were erected, reflecting the wealth and prosperity of the merchants and weavers of Antwerp, Louvain, Ghent, and other cities.

vi. **Historical.**—Flanders, as a fief of France, became united to Burgundy by the marriage of the first Duke of Valois to Margaret, the heiress of Flanders. The whole of the Netherlands

were brought together under the rule of the Dukes of Valois, descendants of the French kings. Early in the sixteenth century the Netherlands belonged to Charles V. (1519-1555). During the Middle Ages the cities of the Low Countries were the richest and most powerful in Europe, and were constantly at war with one another.

2. ARCHITECTURAL CHARACTER.

The architecture of Belgium during this period was of two main types, that of the hilly part partaking of German, and that of the level part (Flanders) partaking of French character. A mixture of Spanish features is observable in many of the domestic buildings, but in the Town Halls a national style of architecture was evolved, which for this class of buildings is unequalled in other countries. Dutch architecture, although somewhat resembling German, has a national character of its own. Much of the ornament in many of the fine, large, and lofty churches of the fifteenth century has, however, been destroyed, owing to iconoclastic zeal.

The Dutch character of simplicity is translated into the barn-like churches, and for this reason the architecture of Holland is of less interest than that of Belgium.

3. EXAMPLES.

ECCLESIASTICAL ARCHITECTURE.

The cathedrals show a general inclination to French ideas in the general disposition of their plans.

Tournai Cathedral (A.D. 1146-1338) is a good example, illustrating the styles of three successive periods. The nave is Romanesque; the circular-ended transepts with four towers and a lantern are of the Transition period, and the choir, with complete *chevêt*, fully developed Gothic, very light and elegant in character.

Brussels Cathedral (A.D. 1226-1280) (No. 167) is one of the finest examples, the choir (1226) being generally considered the earliest Gothic work in Belgium. The eastern termination has a half-developed *chevêt*, and the choir has large side chapels. The vaulting and nave windows date from 1350-1450.

Antwerp Cathedral (A.D. 1352-1411) (Nos. 154 c, 167) is the finest church in Belgium, and is remarkable for nave and treble aisles, the latter of equal heights, and narrow aisleless transepts. The west front (1422-1518), with its single western tower and spire, is rich and elegant but over-decorated, displaying the florid taste of the period.

Bruges, Haarlem, Utrecht, Dordrecht, Ypres, and Ghent Cathedrals are other well-known examples.

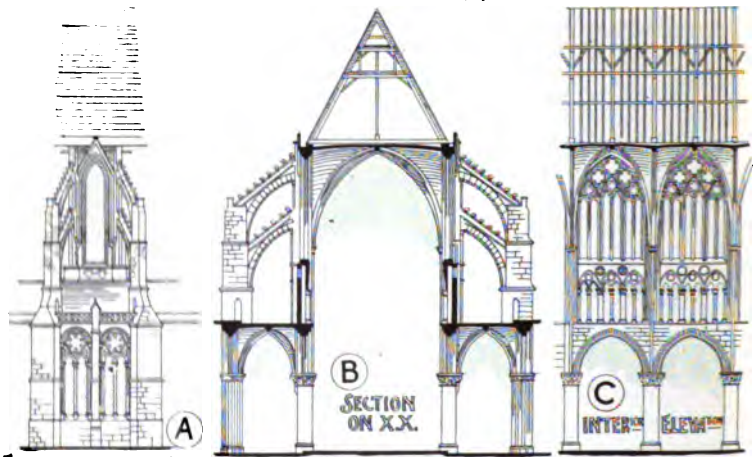
BELGIAN AND DUTCH GOTHIC.



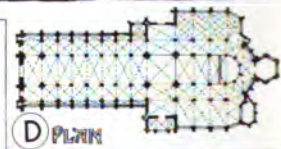
166.

ANTWERP CATHEDRAL.

BELGIAN GOTHIC EXAMPLES.



ST GUDULE
BRUSSELS
A.D. 1226-1230
(WESTERN WYER: 1516)

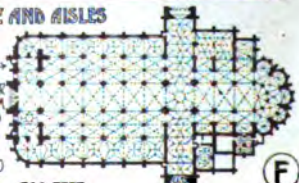


ANTWERP CATHEDRAL A.D. 1352-1411
WESTERN FRONT & TOWER A.D. 1422-1516
REMARKABLE FOR ITS SEVEN AISLES AND
NARROW TRANSEPTS.

NEW TOWER
ONLY CON-
PLETED

SCALE FOR SECTION
ELEVATIONS, 6" IN 1"

15 10 5 0 25 50
100 50 0 100 200 300 FEET





SECULAR ARCHITECTURE.

This reflects the independent and prosperous condition of the mediæval towns. The possession of a "beffroi" (belfry) attached to the town hall was an important privilege granted by charter, and the lower portion, which was of massive construction, was frequently used as a record office. The beffroi at Bruges, 352 feet high (No. 168), is one of the most picturesque of these towers, and forms a landmark for many miles round, its chequered history being referred to by Longfellow :—

" In the market-place of Bruges
 Stands the belfry old and brown ;
 Thrice consumed and thrice rebuilt,
 Still it watches o'er the town."

The **Town Halls** are exceptionally fine ; those at Brussels (1401-1455), Bruges (1377) (No. 168), Louvain (1448-1463), and Ghent (1481) (No. 169) being the more important. Many were designed on the same lines, and are several stories in height, surmounted by a high roof with dormer windows in tiers, the central portion being carried up as a tower, the upper octagonal portion of which is richly ornamented (No. 168).

The *Town Hall at Ghent* (No. 169), built in two distinct styles, is a somewhat striking example of comparative architecture, the Gothic façade (1518-1533) contrasting with the Renaissance façade (1595-1622).

The **Trade Halls** for buying and selling merchandize, especially cloth, for which the country was renowned at this period, are also very characteristic, the *Cloth Hall at Ypres* (1200-1304) being exceptionally fine.

The **Guildhalls** were also built as meeting-places for the separate trades or guilds, which were very powerful, and there are several examples in the market-place of Brussels.

4. COMPARATIVE.

A. **Plans**.—Short and wide plans after French models were adopted in the cathedrals, that at Antwerp having seven aisles (No. 167 F). The French *chevêt* was also adopted.

B. **Walls**.—In domestic work the long, unbroken façades and greater symmetry and regularity of the scheme are characteristic, being regarded in other countries as non-Gothic in design.

These, along with the trade halls and guildhalls of which Ypres is probably the finest example, form a class of building suited to the needs of the community, and their free and open appearance may be compared with the halls of Florence and Siena.

C. **Openings**.—The windows are richly ornamented with

BELGIAN AND DUTCH GOTHIC.



TOWN HALL, GHENT.

sculpture, tracery, and panelling, and bear a similarity and regularity in position which are marked features in these large buildings.

D. Roofs.—In domestic work roofs have steep pitches, and are either hipped (No. 169) or ended by crow-stepped and traceried gables of picturesque outline. Numerous turrets, and bold chimney stacks, combine with the tiers of dormers to complete the rich profusion of the walls below.

E. Columns.—The use of round pillars in the nave, instead of clustered piers, is well exemplified at S. Gudule, Brussels (No. 167 B, C, D). A peculiar feature is noticeable in some town hall arcades, where a column is omitted by hanging up any two arches by means of a long keystone from a concealed arch, as at Liège.

F. Mouldings.—Coarse profusion is characteristic of Belgian Gothic, possessing neither the vigour of French, nor the grace of English, mouldings.

G. Ornament.—In S. Waudru, at Mons, blue stone is combined with a red brick filling-in of the vault, in a scheme of permanent decoration, and S. Jacques at Liège is fully decorated with paintings of a rather later date.

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GERMAN GOTHIC.

(See page 258 for German Romanesque.)

" Some roods away, a lordly house there was,
Cool with broad courts, and latticed passage wet
From rush flowers and lilies ripe to set,
Sown close among the strewings of the floor;
And either wall of the slow corridor
Was dim with deep device of gracious things;
Some angels' steady mouth and weight of wings
Shut to the side; or Peter with straight stole
And beard cut black against the aureole
That spanned his head from nape to crown; these
Mary's gold hair, thick to the girdle tie
Wherein was bound a child with tender feet;
Or the broad cross with blood nigh brown on it."

i. INFLUENCES.

i. **Geographical.**—Germany was flanked on the east, west and south by large and warlike empires having strong racial differences. Owing to this situation it had direct communication with all the great European States. The River Rhine was an important factor in the rise of cities founded in the earlier period.

ii. **Geological.**—The plains of Northern and North Eastern Germany produce no building material but brick, which has a great influence on the architecture in these regions. Stone was found in the centre and south, and timber in Hanover and the north-west.

iii. **Climate.**—(See page 258 in German Romanesque).

iv. **Religion.**—The most interesting feature in the religious life of Germany, prior to the Reformation, was the civil, as well as ecclesiastical, rule of many of the bishops. Some of these episcopal principalities were not finally abolished until the period of the French Revolution.

v. **Social and Political.**—Trade guilds acquired great importance during this period, that of the Freemasons (*cf.* page 281) having been credited with much influence in the design and working out of the Gothic style. In the absence of records, the truth as to the individuality of the architects will not easily be made out.

vi. Historical.—In the twelfth and thirteenth centuries Germany was the heart and centre of the Western Empire. Under the Swabian Emperors long wars occurred with the Lombard league of the north Italian towns (*cf.* page 234). The years 1254–1274, known as the “great interregnum,” because no king was universally acknowledged by all Germany, were times of great confusion and lawlessness, until the house of Hapsburg came into power in 1273.

The “Hanseatic league,” an alliance of the great commercial towns of North Germany, exercised considerable influence on the peaceful arts.

2. ARCHITECTURAL CHARACTER.

The Gothic architecture of Germany was borrowed directly from France, and was not a pure development of the Romanesque, as in the latter country. This may be ascribed to the monumental character of buildings in the Romanesque style, which had been developed to a greater extent than in other countries, no Gothic building being erected in Germany before the thirteenth century.

Gothic was, therefore, reluctantly adopted at the time when it was attaining its great perfection in France, but the Romanesque precedents were long adhered to.

In Northern Germany, in the valley of the Elbe, a brick architecture was developed, as at Lubeck and the neighbouring cities, which, although not equalling that in the valley of the Po, has that special character belonging properly to the material, although expressed in a somewhat meagre manner.

3. EXAMPLES.

ECCLESIASTICAL ARCHITECTURE.

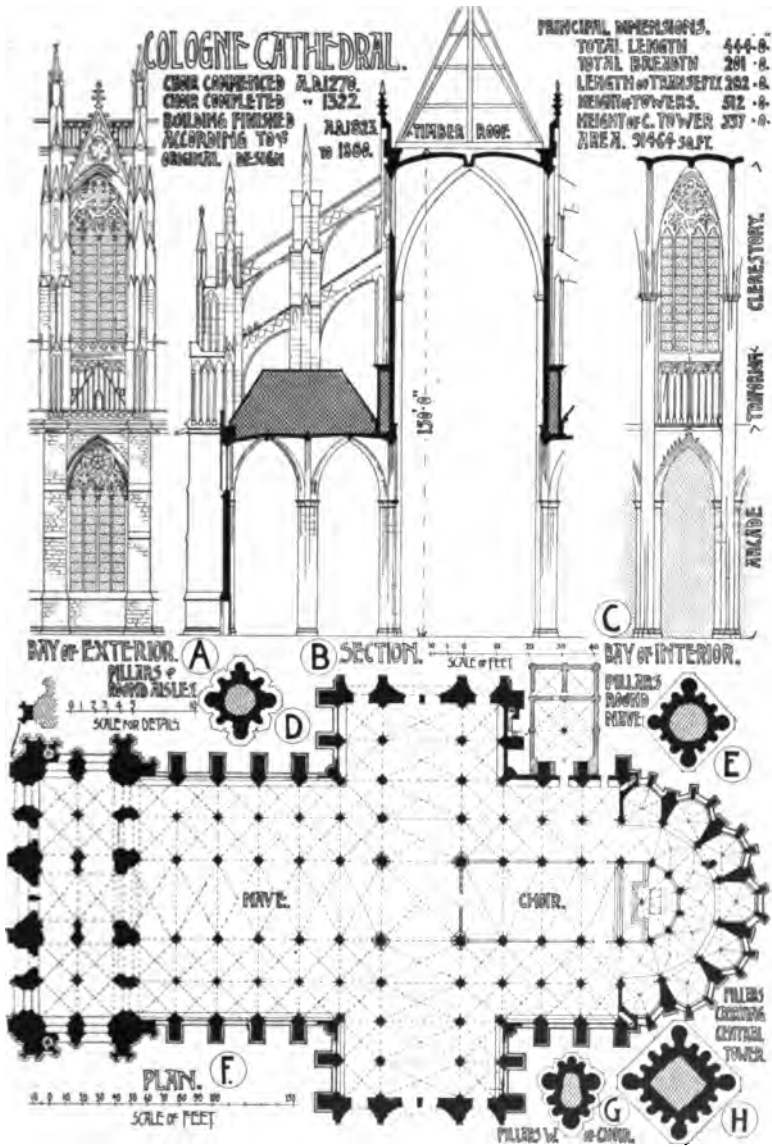
Cologne Cathedral (Nos. 110 c and 170) may be regarded as the great cathedral in this style. It resembles Amiens (No. 159 B), the eastern portion being a direct copy in plan and dimensions.

It is the largest cathedral of North Europe, having an extreme length of 468 feet and a width of 275 feet, giving a superficial area of 91,464 square feet.

It was commenced in 1270, and the choir was completed in 1322, the remainder of the building being completed according to the original design in the nineteenth century.

The clear width of nave between piers is 41 feet 6 inches, and the nave vault is 155 feet in height, being nearly as great as that of Beauvais (page 376).

GERMAN GOTHIC EXAMPLES. I.



The western towers have open-work spires, characteristic of German Gothic, 512 feet in height.

Strasburg Cathedral has the choir niches and transepts in the Romanesque style (1179), the Gothic nave dating from 1263. The western façade has two towers, one of which is continued into an open work spire, 466 feet high, dating from 1439, a large rose window, 42 feet in diameter, and windows with double tracery, *i.e.*, having mullions on the inner and outer faces of the wall. The cathedral was built by

"A great master of his craft,
Erwin von Steinbach; but not he alone,
For many generations labour'd with him.
Children that came to see these saints in stone,
As day by day out of the blocks they rose,
Grew old and died, and still the work went on,
And on and on and is not yet completed.
 The architect
Built his great heart into these sculptured stones,
And with him toiled his children, and their lives
Were builded with his own into the walls
As offerings to God."—LONGFELLOW.

S. Lambert, Hildesheim, has aisles and nave of the same height, being therefore a "Hall Church," as are also **S. Stephen, Vienna**, and **S. Quintin, Mayence**.

Freiburg Cathedral (1283-1330) has a spire similar to that of Cologne, but with a total height of 385 feet.

Ratisbon Cathedral (1275-1534) (No. 171), has a regular plan, octagonal apse without ambulatory, and western towers, with open-work spires added in 1859-1869. The small triangular porch is a peculiar feature.

Ulm Cathedral (A.D. 1377-1477) is spacious and lofty, being notable for the small ratio of support in regard to its floor space, and a polygonal eastern apse without ambulatory. The western tower is 529 feet in height. It has an arcaded gallery to the eaves, a remnant from Romanesque traditions, and fine choir stalls.

S. Elizabeth, Marburg (1235-1283) (No. 172), is the typical form, known as the "Hall Church." The result of raising the side aisles to the same height as the nave, was to abolish the triforium and clerestory, to reduce the importance of the nave, and to do away with the necessity for flying buttresses, while rendering the interior more spacious.

Munich Cathedral, S. Barbara, Kuttentberg, and S. Martin, Landshut (1404), are other examples of this type.

S. Stephen, Vienna (1300-1510) (Nos. 110 D, 172 and 173), is characteristic in having no clerestory or triforium, the three aisles nearly equal in width and height, and one great roof

GERMAN GOTHIC.



171.

RATISBON CATHEDRAL.
West Front.

covering the church in one span. Tower porches occupy the positions of transepts; only one of which is completed and has a splendid spire, less open than usual in German work. The vaults are traceried, and the original stained glass exists.

Lubeck Cathedral (choir and aisles) and the **Marien Kirche, Lubeck**, are types of the brick architecture of North Germany, and express the possibilities of design in that material.

SECULAR ARCHITECTURE.

Castles were erected in goodly numbers, as at Marienburg (1280), Heilberg (1350), and Meissen in Saxony (1471-1483).

Town Halls (*Rathhaus*) at Brunswick, Hildesheim, Halberstadt, Münster and Ratisbon are the best known.

The *Rathhaus* at *Lubeck* and other cities, and the town gates of the Baltic provinces, are evidences of the prosperity of the inhabitants of these times.

In the domestic architecture the roof was a large and important feature, and frequently contained more stories than the walls supporting it, being used as a "drying ground" for the large monthly wash, and planned with windows to get a through current of air.

The planning of the roof-ridge parallel, or at right angles, to the street in towns influenced the design considerably (see page 536 in German Renaissance), thus in **Nuremberg** the ridge is generally parallel to the street, and dormer windows are plentiful, the party walls being apparent, and artistically treated, while at **Landshut** and elsewhere, the ridge being generally at right angles to the street, gables are the result, and these exhibit great variety of design in scrolls and other features.

The dwelling-houses of early date in **Cologne**, with their stepped gables, are notable.

4. COMPARATIVE.

A. **Plans**.—These were based upon (*a.*) the round-arched German style and (*b.*) the French plan. Apses often semi-octagonal, found at end of transepts, and at east and west ends of churches, as at Naumburg.

The *chevêt* is uncommon, although it occurs at Cologne (No. 170), Magdeburg (1208-1211), Lubeck, Freiburg, and Prague.

Triapsal plans are frequent (No. 172 *b*), and a square outline to the general plan is not uncommon.

Twin towers occur at west end of Ratisbon Cathedral (No. 171). In later work, sometimes only one central tower occurs, as in some English cathedrals.

Entrances are often on north or south, instead of being at the

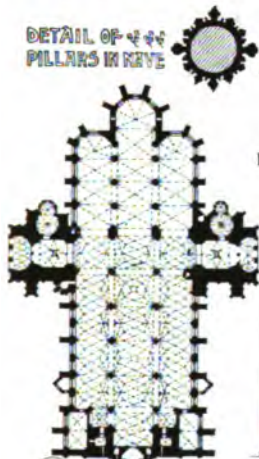
GERMAN GOTHIC EXAMPLES. II.

ST. STEPHEN, VIENNA. AD. 1300 — 1510.

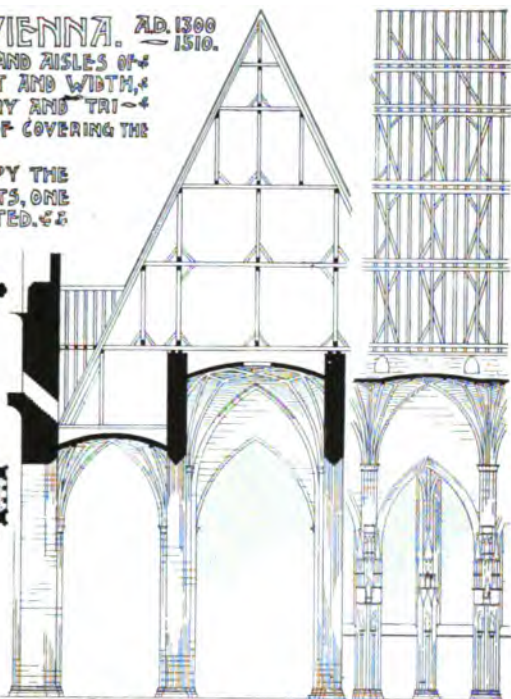
NOTICABLE FOR HAVE AND AISLES OF
NEARLY EQUAL HEIGHT AND WIDTH,
ABSENCE OF CLERESTORY AND TRI-
FORUM AND ONE ROOF COVERING THE
WHOLE.

TOWER PORCHES OCCUPY THE
POSITION OF TRANSEPTS, ONE
ONLY BEING COMPLETED.

DETAIL OF
PILLARS IN KEVE



(A) PLAN.



(B) PART SECTION. (C) BAY OF INTERIOR.

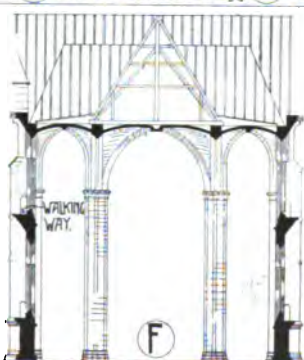
ST. ELIZABETH, MARBURG AD. 1233- 1235. EXAMPLE OF HALL CHURCH WITH HAVE AND AISLES OF EQUAL HEIGHT.



(D) PLAN.



(E) BAY OF EXTERIOR.



(F) SECTION.



(G) BAY OF INTERIOR.

SCALE 0 10 20 30 40 50 60 70 80 FEET FOR PLANS

SCALE 0 10 20 30 40 50 60 70 80 FEET FOR SECTIONS

GERMAN GOTHIC.



west end. They sometimes have towers over them, and take the place of transepts (No. 173).

Towers with spires were much used, but the junction of the spire was often insufficiently marked, the outline, though ornamented, being weak. Open-work tracery spires indicate the same liking for this feature which is seen in the Rhenish Romanesque churches. The typical examples are Strasburg (1429) (No. 154 E), Freiburg (1300), Ratisbon (No. 171), Cologne (No. 110 C), and Vienna (No. 173) Cathedrals.

B. Walls.—The apsidal galleries of the Romanesque style were simply copied, without reference to their origin and meaning. Tracery was employed on the outer and inner wall surfaces, the mullions being often cut across the openings behind.

Lubeck in the north is the centre of a brick district, and churches of this material abound, as also in Bavaria and at Munich.

C. Openings (No. 174 E, F).—Tracery was elaborated, double tracery windows being used in later examples.

Excessive height is a characteristic, and the use of two tiers of windows was due to the lofty aisles (No. 172). In the north the clerestories are excessive in size, starting as low down as possible, to provide a great expanse of stained glass.

D. Roofs.—Churches were nearly always vaulted, but were sometimes covered only with a wooden roof.

Great attention was paid to the vaulting, both as regards its size and excellence of construction.

Square vaulting bays to the nave were often adhered to, corresponding with two aisle bays, but vaulting in oblong bays afterwards became general, as at Freiburg, Ratisbon, Cologne, Oppenheim, and elsewhere.

The special German feature is the immense roof, covering nave and aisle in one span (No. 172), which was due to the side aisle being made nearly as high as the nave, and when the aisles are equal in height to the nave it is the recognized German type known as the "Hall Church" (No. 172 F). Tower roofs of the Romanesque form were still used.

E. Columns.—Piers usual in naves (Nos. 170 and 172) and not the columns found in early French Gothic, the tendency being to make them lofty posts carrying the roof, owing to the height of the aisles.

F. Mouldings.—Complexity rather than simplicity was striven after; thus *interpenetration* of mouldings (fifteenth century) was a very characteristic treatment, consisting of two different sets of mouldings, appearing and disappearing in and out of the same stone, each being provided with its own base and capital. The resulting complicated intersections required great skill in the geometrical setting out and execution.

Features such as pinnacles are larger the higher they occur, and therefore scale is destroyed, as at Cologne, whereas in English and French work the features do *not* increase in size.

c. **Ornament** (No. 174).—Foliage was treated in a *naturalesque* manner, and the interlacing of boughs and branches is a common feature (No. 174 A, c, j). In general, the carving was superior to the design, the tracery of later windows sometimes representing the branches of trees ("branch tracery"), in which technical display was more considered than grace of outline.

The Tabernacles or Sacrament Houses were developed in this period, being placed at one side and forming a lofty and tower-like structure, tapering upwards in many stages. They form an important feature of German decorative art, dating from the time that the consecrated Host above the altar went out of use. They are of stone or wood, and either placed against a wall or isolated; and were used to keep the "pyx" with the eucharist, the shrine itself being closed by a pierced iron grating. They usually represented a Gothic spire with its traceried windows, pinnacles, statuary decoration, and canopies, all erected in miniature.

Examples are found throughout Germany, and they are sometimes of great height, as at Ratisbon (52 feet), Ulm (90 feet), and the Lorenz Kirche, Nuremberg (64 feet).

Stained glass and ironwork were well treated, and in many cases were most elaborate.

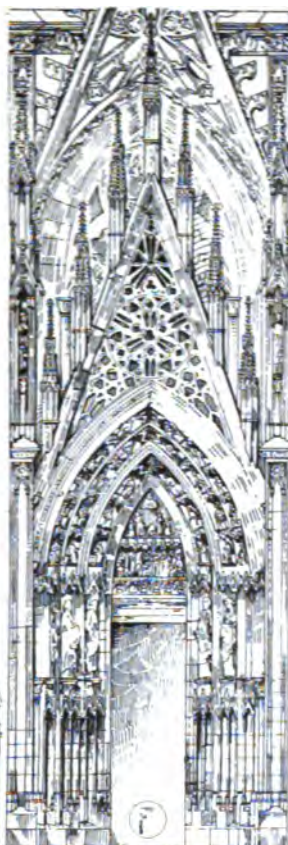
The enforced use of brick in the north was unsuitable for the employment of sculptured work, and in its place moulded and colored brickwork was used as a means of decoration, and the interiors are plain and bare in character.

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GERMAN GOTHIC ORNAMENT

GERMAN
GOTHIC
ORNAMENT.



L
TOMB, BRABANT. DUC AND DUCHESS OF BRABANT.

ITALIAN GOTHIC.

(See page 228 for Italian Romanesque.)

"I will give thee twelve royal images
Cut in glad gold, with marvels of wrought stone
For thy sweet priests to lean and pray upon
Jasper and hyacinth and chrysopas,
And the strange Asian thalamite that was
Hidden twelve ages under the heavy sea,
Among the little sleepy pearls to be
A shrine lit over with soft candle flame."

I. INFLUENCES.

i. **Geographical.**—German influence in Lombardy was effected through the connection of this part of Italy and Germany geographically by the Brenner Pass. The work at Venice was similarly influenced by an oversea trade connection with the East.

ii. **Geological.**—The influence of materials in the development of this style was important. The colored marbles of Northern and Central Italy supplied abundant and beautiful material for the elaboration of plain wall treatment, as in Florence (No. 181), Siena (No. 182), Genoa, Orvieto, Lucca, and other places. Red, black, and white marbles were used in stripes, and also in panels, the architect relying much for effect upon their color and disposition.

The brick and terra-cotta of Northern Italy has left a decided impress on the architecture of that district, many large buildings, such as the Hospital at Milan and the Certosa at Pavia, having been erected in these materials.

iii. **Climate.**—The influence of the climate and brilliant atmosphere is apparent in the small windows, which, with thick walls, were necessary to keep out the glare and heat of the Italian sun, factors which also hindered the development of tracery.

The preference for opaque treatment, such as mosaic work and fresco decoration, was inherited from the Romans, while the climate counteracted effectually any desire the Italians might have had for the suppression of the walls by the employment of large windows of stained glass, for the reasons mentioned above.

iv. Religion.—The real power of the Pope as head of the Western Church died with Gregory X. (1271-1276). The succeeding Popes were under the influence of the King of France, and for nearly seventy years (1309-1376) resided at Avignon, losing authority and influence during their absence from Rome. Rival Popes existed until a settlement was arrived at by the Council of Constance, in 1415. The factions of the Guelphs and Ghibellines (pages 230, 259) distracted Italy from 1250 to 1409, a subject dealt with by Mr. Oscar Browning in his "Mediæval Italy."

v. Social and Political.—Italy at this period was cut up into small principalities and commonwealths, in which political life was full of rivalry and activity, and small wars were of constant occurrence. The erection of the Cathedrals of Siena, Orvieto, Florence, Milan and Lucca was largely due to the civic pride of the various rival cities, while the numerous Town Halls attest the growth of municipal institutions. Tasso has a line to the effect that each holiday they blew trumpets, and proceeded to sack the adjoining town. Yet other countries looked to Italy as the head in arts, learning and commerce. The poet Dante (1265-1321) has in his great poem presented a summarized picture of the age.

The revival of learning took place in Italy nearly a century in advance of northern Europe.

vi. Historical.—To the Latin conquest of Constantinople, in 1203, is mainly attributed the sudden development of the formative arts in the thirteenth century in Europe, for the citizens being dispersed during the sixty years of Latin occupation, all commerce was transferred to the cities of Italy, and many Greek artists were established at Venice, Pisa, Siena and Florence. In the thirteenth century successive members of the Visconti family ruled as Dukes of Milan, and were very powerful in consequence of the wealth and industry of the cities over which they held sway. The maritime commonwealth of Genoa considerably reduced the power of Pisa in 1284, and the latter was conquered by Florence in 1406. Florence became one of the chief states of Italy under the powerful family of the Medici (page 447).

2. ARCHITECTURAL CHARACTER.

The influence of Roman tradition, as shown in the Classic forms of construction and decoration, was so great that the verticality which marks the Gothic architecture in the north of Europe does not pervade the Italian examples to the same extent.

The churches are especially noticeable externally for (*a.*) the flatness of the roofs (Nos. 181, 182); (*b.*) the tendency to mask the aisle roofs by a mere screen wall forming the west façade, without

ITALIAN (NORTH) GOTHIC.



175.

MILAN CATHEDRAL.
East End.

reference to the slope of the roofs behind (No. 182); (*c.*) the great central circular window in the west front lighting the nave; (*d.*) the flatness and comparative unimportance of the mouldings, their place being more than taken by the beautiful colored marbles with which the façades were faced, and the broad surfaces covered with fresco decorations.

There is an absence of pinnacles due to the unimportance or the buttresses, but the crowning cornice (No. 181), and the employment of elaborately carved projecting porches at the west end, the columns of which often rest on the backs of lions and other animals, are characteristic features.

“Stern and sad (so rare the smiles
Of sunlight) looked the Lombard piles;
Porch pillars on the lion resting,
And sombre, old, colonnaded aisles.”—TENNYSON.

Sculpture partakes of classical purity, and is in this respect superior to that exhibited in northern examples, but it enters far less into the general composition and meaning of the architecture. Corinthian capitals of modified form and the Roman acanthus were constantly used in Gothic buildings (No. 184).

Mosaic was used externally in panels, in continuation of early ideas and practice.

Terra-cotta and brickwork, in their plastic state rendered much ornament easy of application, and a smallness in detail followed, which was eminently suited to the material, as, for example, at the Frari Church at Venice and elsewhere.

The treatment of moulded brickwork has never been carried to greater perfection than in North Italy during the Gothic and Early Renaissance period, especially in civic buildings, although the effect of sublimity is perhaps not to be obtained in so small a material unless used in the broad massive manner of the Romans. On the other hand, there is no beauty of detail or of design on a small scale that may not be obtained by the use of moulded bricks, which, if carefully burnt, are as durable as most kinds of stone.

The Italian use of brickwork was essentially the right one; the details were small and designed with taste, and the effect of variegated color was relied on instead of depth of shadow—a perfectly legitimate and expressive use of material where small and colored units are used. Stone of different color was also carried systematically in patterns through the design, giving a special character, as at Verona. A flatness and want of shadow is necessarily characteristic of brick buildings, sufficient projection not being obtainable for cornices, and this was always tolerated by the Italians, who allowed the material to express its own capabilities without trying to disturb its architectural function.

3. EXAMPLES.

NORTH ITALY.

Milan Cathedral (A.D. 1385-1418) (Nos. 175, 176 A, B, C, 177), erected by the first Duke of Milan, is the most important work of this period, and there is a marked German influence, both in character and details. It is the largest mediæval cathedral, with the exception of Seville, and is built entirely of white marble. The roof is very flat in pitch, being constructed of massive marble slabs, laid upon the upper surface of the vaulting.

In plan it consists of a nave with a very small clerestory, and double aisles of extreme height, the nave terminating with a circlet of columns in the French manner, but inclosed in a German polygonal apse. To the Ambrosian ritual is due the absence of side-chapels in the original scheme. At the crossing of the nave and aisles is a vault crowned with a marble spire, designed by Brunelleschi in A.D. 1440. The feature of the interior is the range of immense shafts to the nave (No. 177), whose summits are treated with canopied niches, filled with statues, in the place of the ordinary capitals. Externally, the character of the whole design is expressive of richness and lace-like intricacy, which is aided in effect by the numerous pinnacles of glittering marble (No. 175).

"O Milan, O, the chanting quires ;
The giant windows' blazon'd fires ;
The height, the space, the gloom, the glory !
A mount of marble, a hundred spires."—TENNYSON.

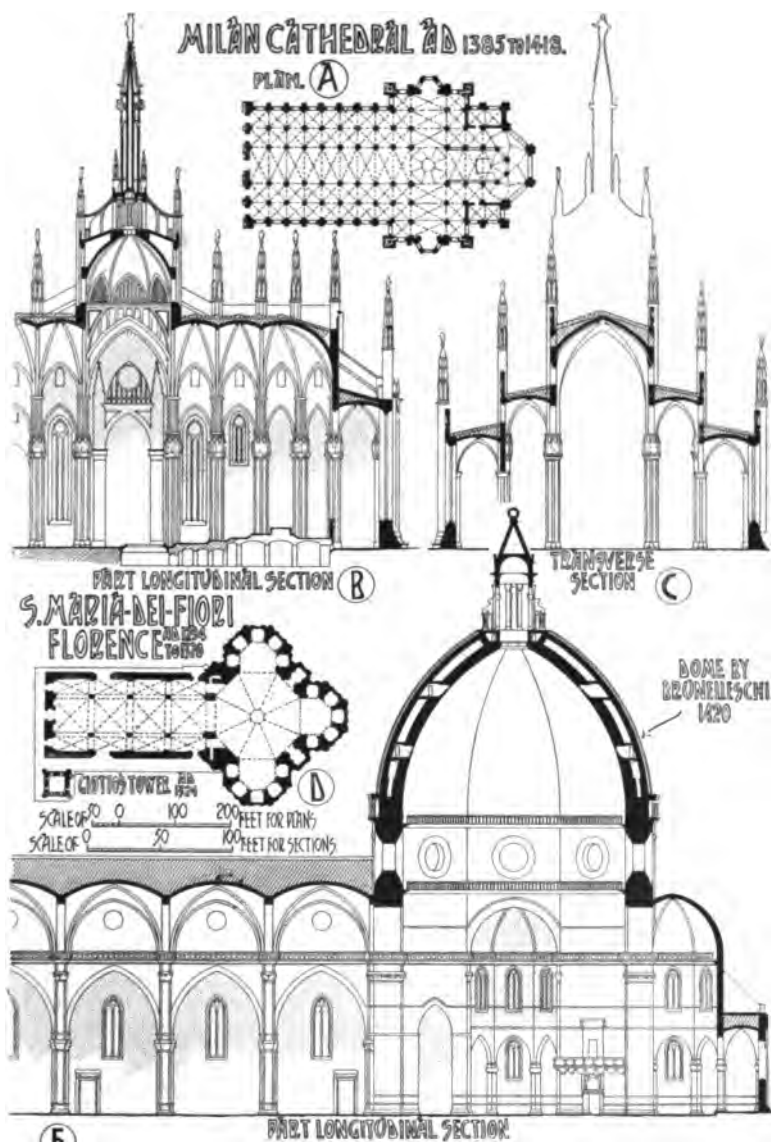
S. Petronio, Bologna, commenced in 1390, in emulation of Florence Cathedral, would, if completed, have been one of the largest churches of this period. It was to have consisted of a nave and aisles and outer chapels on either side, and resembled in section the Cathedral of Milan (No. 176 B, C). Many architects, including Palladio, have produced designs for the unfinished west front.

The **Certosa, Pavia**, commenced in 1396, having a central lantern in stages, crowning an internal dome, and the great **Hospital, Milan**, where terra-cotta was largely used, exemplify the influence of brick and terra-cotta on the architecture of the district.

The churches and palaces at Bologna, Vicenza, Padua, Verona, Cremona, and Genoa contain specimens of brick architecture with pleasing moulded details.

S. Antonio, Padua (1237-1307) is a remarkable design, closely resembling S. Mark in plan (page 208), but with seven domes instead of five, and the front porch omitted. The domes were added in 1475.

ITALIAN GOTHIC EXAMPLES. I.



ITALIAN (NORTH) GOTHIC.



177.

MILAN CATHEDRAL.
Interior, looking East.

Venice is remarkable for the civic and domestic architecture of this period, and it must be remembered that the Venetian state occupied a prominent position as a great trading centre in the Middle Ages, her power and richness being due to the supremacy of her navy.

“Where Venice sate in state, throned on her hundred isles.”

S. Giovanni e Paolo (1260-1400), a Dominican church, and **S. Maria Gloriosa dei Frari** (1250-1280), a Franciscan church, are magnificent examples, showing the influence of the Monastic orders. The latter by Niccolo Pisano, is of the Basilican type, with six eastern chapels, and has a fine campanile adjoining the church (*cf.* Siena, No. 182).

S. Anastasia, Verona (1261), and **S. Andrea, Vercelli** (1219), are notable examples, the latter being peculiar in having two western towers, and an English type of plan.

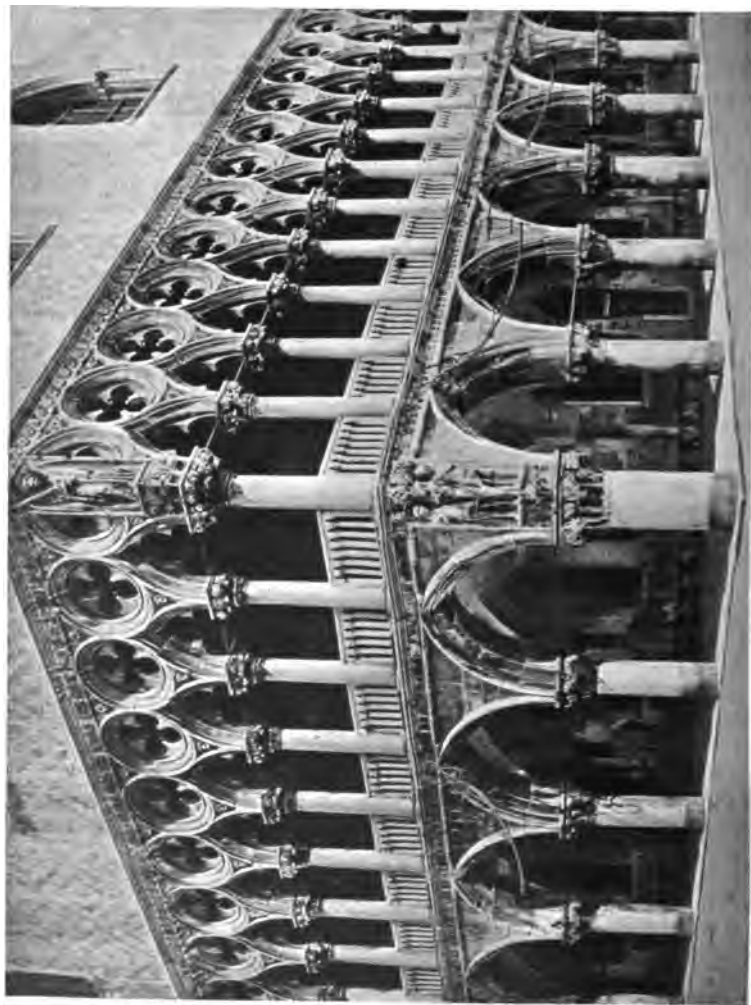
The **Doges' Palace, Venice** (Nos. 178 and 179 B) (façade A.D. 1424-1442, by G. and B. Buon) is the grandest effort in civic architecture of the period. Each façade consisted of an open arcade of two stories, one originally advanced in front and surrounding the main building. The latter was partly destroyed by fire in the sixteenth century, but was rebuilt and extended over the double arcade in the Venetian style, with rose-colored and white marble, in imitation of bricks, arranged in patterns, the otherwise blank walls being broken by a few large and richly ornamented windows. The lower columns seem to rise out of the ground, having no bases, and the solid and connected character of the tracery gives some stability to the design, so heavily loaded above. The delicate and light carving in low relief which occurs in the capitals of the arcades is justly celebrated, the excellence of marble as a material for carving being largely responsible for the refinement of execution in this example.

The **Ca d' Oro Palace, Venice** (Nos. 179 A and 180), also by the Brothers Buon, is another fine specimen of the domestic work with which Venice abounds. The tracery especially is Venetian in character, as is also the grouping of the windows towards the centre of the façade, the extremities of the design being left comparatively solid, thus producing the effect of a central feature inclosed by wings.

The **Ponte alle Grazie** (1237) and the **Ponte Vecchio** (1362), both at Florence; the **Bridge over the Adda** at Trezzo, constructed in the fourteenth century and afterwards destroyed; and the **Bridge over the Ticino, Pavia**, are other examples of the secular architecture of the period.

The **Palazzi Foscari, Contarini-Fasan, Pisani** (No. 179 C), and **Cavalli** are other well-known examples. A general idea of

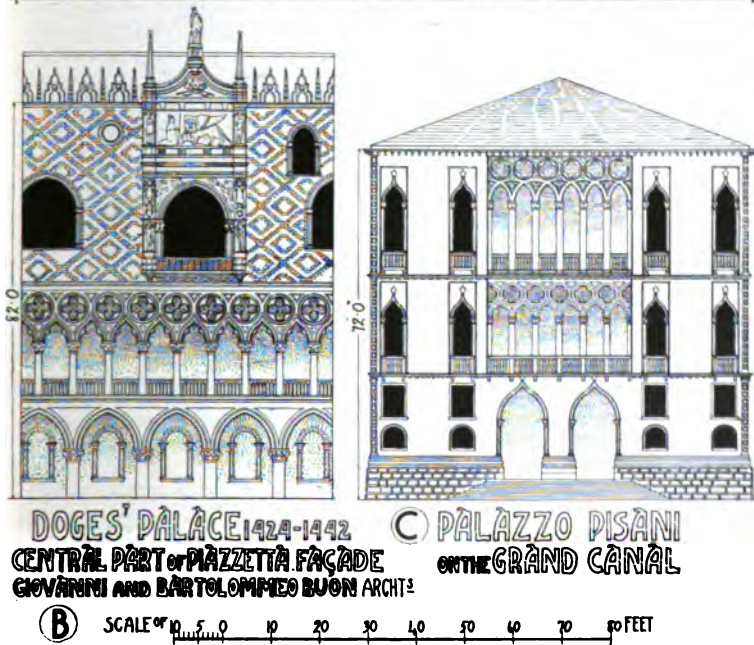
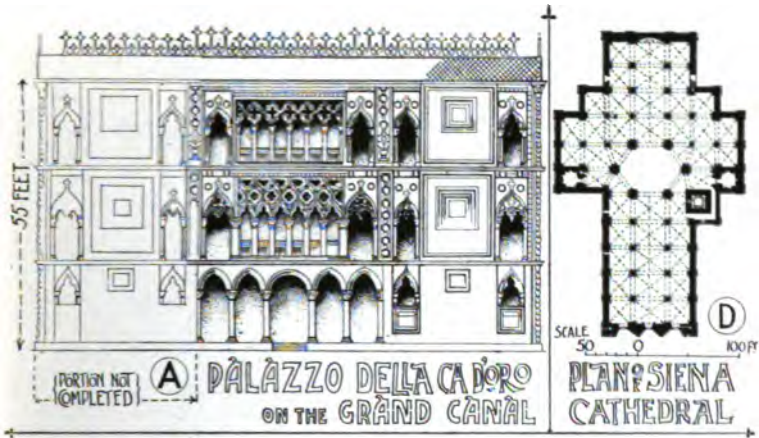
ITALIAN (NORTH) GOTHIC.



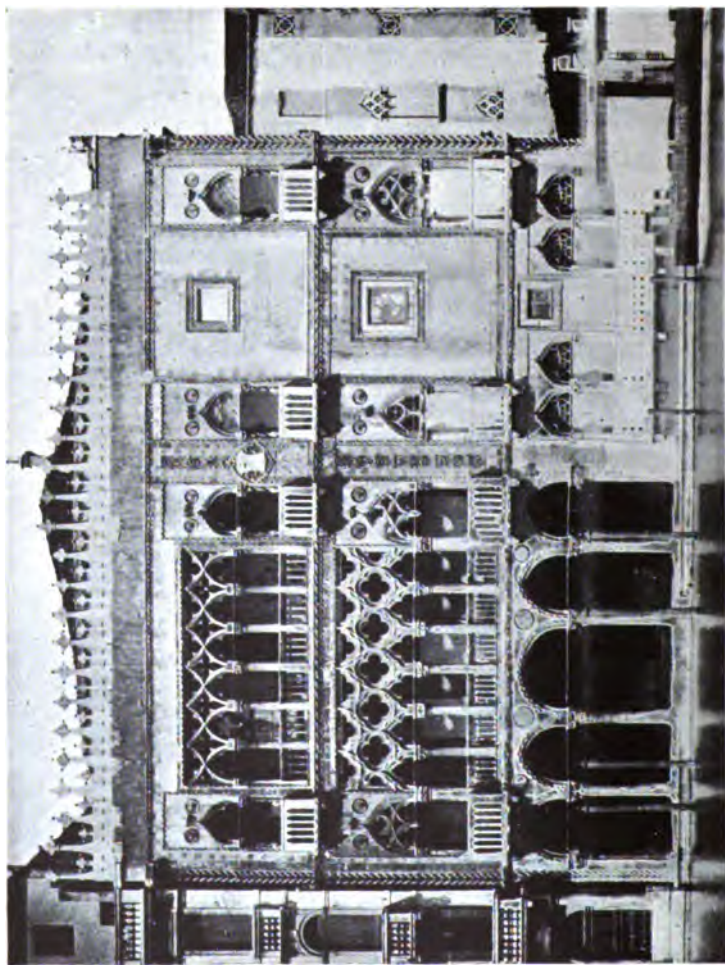
178.

THE DOGES' PALACE, VENICE.

ITALIAN GOTHIC EXAMPLES. II.



ITALIAN GOTHIC.



180. PALAZZO DELLA CA D'ORO, ON THE GRAND CANAL, VENICE.

ITALIAN (CENTRAL) GOTHIC.



FLORENCE CATHEDRAL AND GIOTTO'S CAMPANILE.

ITALIAN (CENTRAL) GOTHIC.



182.

SIENA CATHEDRAL.

Venetian Gothic is obtained from the old front of S. James's Hall, Piccadilly, and the building in Lothbury, opposite the Bank of England.

CENTRAL ITALY.

Florence Cathedral (Sta. Maria dei Fiori) (1294-1462) (No. 176), is chiefly remarkable for the wide spacing (55 feet) of the nave arcades, the nave itself, the absence of a triforium, buttresses and pinnacles (No. 181), and for the marble façades in colored panelling. The cathedral was erected from the designs of Arnolfo di Cambio, and the octagonal dome, 138 feet 6 inches in diameter, was added in 1420 by Brunelleschi, while the façade was completed in 1887. Internally the fine effect promised by the plan is not realized, vast masses of grey pietra serena stone, in piers and arches, being contrasted by blank white-washed spandrels. The Baptistery (originally the Cathedral), erected in the tenth century, but remodelled by Arnolfo in A.D. 1294, is an octagonal structure faced with pilasters and richly colored ornamentation, being further remarkable for the fifteenth century bronze doors by Ghiberti.

The **Campanile** (Nos. 176 D and 181), adjoining, by Giotto (A.D. 1324), is square on plan, 292 feet high, in four stories of increasing height, and is built in red and white marble. Tracery of an elementary character is introduced into the windows in this example, as in the adjoining cathedral, and inserted in the solidly designed lower story are sculptured panels of great interest and beauty. Below the present tile roof the start of the intended spire can be traced.

S. Maria Novella, Florence (A.D. 1278), is an imposing example erected by the Dominicans, and **S. Croce, Florence** (1294), is a well-known example of the same type.

The **Palazzo Vecchio, Florence** (1298), by Arnolfo di Cambio (with its remarkable tower), the **Palazzo Pubblico, Siena**, and the **Loggia dei Lanzi, Florence** (1376), are examples of the vigorous secular architecture of the period.

Siena Cathedral (A.D. 1243-1284) (No. 182) is remarkable in having a dome, 58 feet in diameter, covering an irregular hexagonal space at the crossing (No. 179 D), and for its façade in black and white stripes, with three portals of equal size, and characteristic rose window. The ground falling towards the east end, allowed of a crypt being formed under the sanctuary, which is used as a baptistery. The unfinished elevation of this east end is a grand design.

The **Campo Santo, Pisa** (1278-1283) (No. 91), is a well-known example, having an unusual development of open tracery in the arches (No. 184 C).

Orvieto Cathedral (A.D. 1290) resembles that of Siena, but is

ITALIAN (SOUTHERN) GOTHIC.



MONREALE CATHEDRAL.
The Cloisters.

imbued more considerably with Northern Gothic feeling. It is mainly of one period, the façade dating from 1310, and is more harmonious in design than the Siena example. The nave is now restored with an open timber roof of the Basilican type.

S. Francis, Assisi (A.D. 1228-1253), is an example which was from the designs of a German, Jacobus of Meruan. It consists of an upper and lower church, and is very northern in detail, depending much more on its frescoed interior than upon the architecture proper for its magnificence and character. Both churches are vaulted, built of brick and plastered, and received a complete treatment in painted decoration by Cimabue and Giotto.

In **Rome**, churches of the Basilican type were erected throughout the Middle Ages, **S. Maria sopra Minerva** (1280) being quoted as the only Gothic church in Rome.

SOUTHERN ITALY AND SICILY.

The influences at work in these districts have already been referred to in Romanesque (page 239). The style has been described as "Greek in essence, Roman in form, and Saracenic in decoration."

Messina and Palermo Cathedrals have plans founded on the Roman basilican type, the naves having timber roofs of great elaboration and intricate construction, resembling in their effect the honeycomb work of Saracenic art. The pointed arch was used, but without mouldings or even receding planes (No. 183).

The main idea striven after in these churches was the unfettered display of mosaic decoration, in which the principal personages of the Bible are rendered in a stiff archaic style, with borders of arabesques in gold and color, while the lower parts of the walls have a high dado of white marble, with a border introducing green and purple porphyry in patterns.

Palermo Cathedral is a remarkable example of external architectural decoration in stones of two colors, the apses in particular being very fine. At the west end is a group consisting of a central and two lower towers, with detail of an arbitrary style, but suggesting Northern Gothic in its vigour of skyline.

4. COMPARATIVE.

NORTH, CENTRAL, AND SOUTH.

A. Plans.—The endeavour to create a great central space in the churches, as at Florence (No. 176) and Siena Cathedrals (No. 179 D), shows the influence of Etruscan and Roman models.

The widely-spaced nave arcades are characteristic, the triforium being usually omitted, as at Florence and Milan (No. 176), and the clerestory reduced to the unimportance of a vault spandrel, pierced by a small, and generally circular, window. These lofty arcades practically include the aisles and nave in one composition and give the effect of a single hall.

The nave vaulting is frequently set out in square compartments, as at Florence Cathedral (No. 176 D) and the Certosa, Pavia, the side aisles having oblong ones, thus reversing the Northern Gothic practice.

Towers, usually isolated, have square shafts without buttresses, sometimes beautifully decorated, continuing the Romanesque tradition, and developing no spire growth, like northern examples. The best known are at Florence (No. 181), Siena (No. 182), Lucca, Verona (No. 184 K), Mantua and Pistoja.

The most imposing external feature was frequently a dome, as at Siena (No. 182) and Florence (No. 181).

The central lantern tower, in diminishing stages, as at Chiara-valle, the Certosa at Pavia, and Milan Cathedral (No. 176), are an advance on the Romanesque lanterns at the crossing, and may be compared with English work.

b. Walls.—The absence of large windows obviated the necessity for projecting buttresses, the high and flat walls being usually comparatively solid throughout their length, and able themselves to withstand the pressure of a vault (Nos. 181 and 182). From the absence of vertical features and shadows in the façade, flatness is the predominant characteristic of the style.

Façades are treated independently as decorative compositions, and often have no relation to the structure or roofs behind (No. 182). These façades are often incomplete, being compositions in marble facing, in many cases not finished on the score of expense. The marble was used in bands of two colors at Siena (No. 182) and Orvieto, each having three high gables, and in panelling at Florence (No. 181). This surface treatment was borrowed from the Saracens, and may be compared with northern methods, in which effect is obtained by deeply-moulded string courses, projecting buttresses, and lofty pinnacles.

c. Openings.—The windows are often semicircular headed, and have shafts with square capitals of Corinthian type, instead of the moulded mullions of northern Gothic examples (No. 184 c). These slender shafts are often twisted, and even inlaid with glass mosaic known as "cosmato" work, from the family of that name, while the capitals are richly sculptured.

Venetian tracery is a special form of geometrical combinations (No. 178).

A moulded keystone is often provided to pointed arches, which are frequently inclosed by square lines as a frame.

D. Roofs.—These are of low pitch, and of small importance in the design, being scarcely visible from below (Nos. 179 and 180). They are often in contradiction to the steep gables of the façades, borrowed from northern Europe, and treated solely as a field for mosaic and other elaborate decoration. Iron tie-rods were often used to prevent the spread of roof timbers owing to insufficient buttressing.

E. Columns.—The piers of the arcades in the churches are at times surprisingly clumsy in plan, four pilasters combined back to back being a common section. Round piers, with capitals and bases, recalling Roman work, were also used, but the continuous sequence in the design of such features, as may be traced north of the Alps, is not observable.

In Milan Cathedral the circular moulded piers, by their height and size, and peculiar treatment of tabernacle capitals, produce the effect of a columnar interior (No. 177).

F. Mouldings.—These have a flatness and squareness often little changed from Roman work, and the section of an arch mould is often identical with that of the jamb, although there may be capitals at the impost. Mouldings are throughout subordinate to surface decoration, the most interesting being those due to the use of brickwork in the façades.

G. Ornament (No. 184).—Opaque decoration was preferred to translucent; the art of fresco, by constant exercise upon the noblest subjects in the grandest buildings, leading up to the golden age of Michael Angelo and Raphael. Some buildings, such as Giotto's chapel at Padua, and the Sistine chapel at Rome, are shells for painted decoration, almost devoid of architectural features. In carving (Nos. 184 A, B, E, F, G, H, I.) and sculpture Classic tradition led to a refinement and an elegance which contrasts with the grotesque element found in northern work, but on the other hand, the general design is often neglected in the attention bestowed upon accessories. It is in the carving and mosaics to the sumptuous altars and canopy tombs, the pulpits (No. 184 B), pavements and choir stalls, and in the veneering of the façades with colored marbles, that the decorative character of the style is best seen.

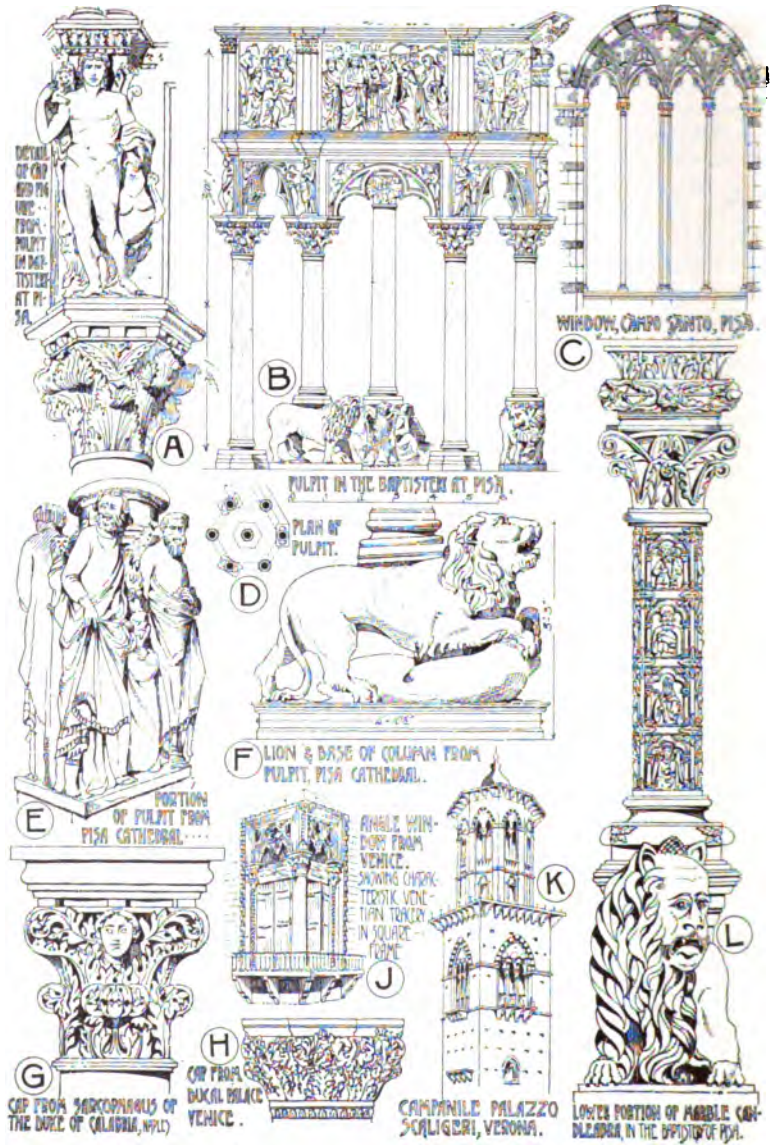
The Tomb of the Scaligers, Verona (1329-1380), is an example of rich decoration, and many of the churches at Rome have elaborate inlay mosaic work of "cosmato" design on their arches and twisted columns.

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SPANISH GOTHIC.

“ Oft let me range the gloomy aisles alone
(Sad luxury ! to vulgar mind unknown)
Along the walls where speaking marbles show
What woes hies form the hallowed mould below ;
Proud names, who once the reins of Empire held ;
In arms who triumphed, or in arts excelled :
Chiefs, graced with scars, and prodigal of blood ;
Stern patriots, who for sacred freedom stood ;
Just men, by whom impartial laws were given ;
And saints, who taught, and led the way to heaven.” —TICKELL.

I. INFLUENCES.

i. **Geographical.**—Spanish architecture cannot be understood without a knowledge of the geography of the country. The existence of rival races and kingdoms within the peninsula was rendered possible by the mountainous character of some parts, and the subdivision of the country by sierras, or chains of low rocky hills. The kingdom of Granada, where the Moors held out until the close of the Gothic period, was surrounded by mountains which inclosed a fertile plain, the finest in the country.

ii. **Geological.**—Stone was the material generally employed, but granite and some of the semi-marbles, which the country throughout possesses, were used in places. Rubble-work, with brick bonding courses and quoins, was used under Moorish influence with much taste and success, as in the towers and gates of the city of Toledo.

iii. **Climate.**—This varies with the structure of the country, which is that of a series of table-lands of varying elevations, divided by sierras. Burgos, in the north, 3,000 feet above the sea, is cold, and exposed to keen winds even in the summer, while in the south the climate is sub-tropical.

iv. **Religion.**—Constant warfare with the Moors gave a certain unity to Spain, the struggle being a war of religions as well as of races. Allegiance to the Papacy has been a characteristic of Spain, and Santiago was a pilgrimage centre of more than national importance. The arrangement of the choirs and the size and

importance of the chapels attached to the cathedrals were due to the ritual.

v. Social and Political.—In the Spanish peninsula, the Christian states of Castile, Leon, Navarre, Aragon, and Portugal were all growing up and gradually driving the Mahometans into the southern part called Andalusia. After many intermittent successes, as the capture of Toledo (1084) by Alfonso VI., the battle of Tolosa (1212), gained by the Christians, was the turning point, after which Mahometan influence gradually declined. It was during the reign of S. Ferdinand (1217-1252), who united Castile and Leon, and won back Seville and Cordova, that Gothic art took root, sown by the spirit of conquest and aided by the wealth of the conquered Moors. James, called the Conqueror (1213-1276), King of Aragon, pressed into the east of Spain until the kingdom of Granada was the only portion left to the Mahometans.

vi. Historical.—The study of the history of a country, always necessary in order to properly understand the development of its architecture, is specially required in the case of Spain, which has been occupied at different times by peoples of various races. After the Romans left Spain the Vandals and Visigoths took possession, after which, A.D. 710-713 (page 655), the country was invaded by the Moors from North Africa, and for 800 years their influence was continuous. The evidence of this is to be seen in the stronghold of their power—the south of Spain—where the curious construction, the richness of the architecture, and the exuberance of intricate, and lace-like, detail are everywhere apparent. This influence occasionally reached far into the north, owing to the superior education and ability of Moorish workmen, for although Toledo was captured by the Christians in 1085, the Spanish conquests were gradual, and the final expulsion of the Moors did not take place till 1492.

2. ARCHITECTURAL CHARACTER.

In the south, as already mentioned, there was always more or less of Moorish influence, and from Toledo, the Moorish capital, this influence made itself felt in Saracenic features, such as the horseshoe arch, and, in later times, the pierced stonework tracery of Moorish design. These fretwork screens occupy the whole window, and are rich in detail. Elsewhere buildings, under Moorish influence, were covered with intricate geometrical and flowing patterns and rich surface decorations, for which the Saracenic art is everywhere remarkable, as in the Jews' synagogue at Toledo.

The curious early churches of the Spanish conquerors seem to have been executed by the aid of Moorish workmen.

The Gothic style was best developed in Catalonia, where, though on French lines, as in most parts of Spain, it has a special character, owing to the grand scale of the single-span vaulted interiors. Leon Cathedral goes beyond its French original at Amiens, in the expanse of window opening and tenuity of its supports. The exteriors usually are flat in appearance, owing to the space between buttresses being utilized internally for chapels, and generally, it may be said that a liking for excessive ornamentation without any regard to its constructive character is apparent. Contrary to Northern Gothic, broad wall surfaces and horizontal lines are special features of the style.

The cloisters of many of the cathedrals, as Barcelona, Toledo, and Lerida, are characteristic.

In the later period, the grafting of classical details on to Gothic forms produced some of the most picturesque features imaginable.

3. EXAMPLES.

ECCLESIASTICAL ARCHITECTURE.

S. Isidoro, Leon (completed 1149), and old **Salamanca Cathedral** (A.D. 1120-1178), which has a dome over the crossing of nave and transepts, were both influenced by the Southern French Romanesque models of Aquitaine and Anjou.

Santiago de Compostela Cathedral (A.D. 1078), on the other hand, is an example of a building with nave, transepts and a complete *chevêt*, due to the influence of Northern French Romanesque. In this church the nave is covered with a barrel vault and the side aisles with cross vaults.

Burgos Cathedral (A.D. 1230) is irregular in plan (No. 190 L). It has two towers to the western façade, which, with their open-work spires (No. 185), recall Cologne, and a richly-treated lantern over the crossing which was completed in 1567. The lantern (known as the "cimborio"), and the peculiar treatment of the interior is shown in No. 186. The "coro" or choir is in the usual position to the westward of the crossing, the nave being reduced to a mere vestibule, while the extraordinary size and importance of the side chapels are striking, as that of the Capilla del Condestable (A.D. 1487), which is octagonal, over 50 feet in diameter, and specially remarkable for the beauty and richness of its late detail.

Toledo Cathedral (A.D. 1227) (No. 187 D), is a five-aisled church and resembles Bourges (page 368) in general idea. It is about the same length, but nearly 50 feet wider, and has the choir inclosure west of the crossing, with a singularly shallow

SPANISH GOTHIC.



185.

BURGOS CATHEDRAL.
View from N.W.

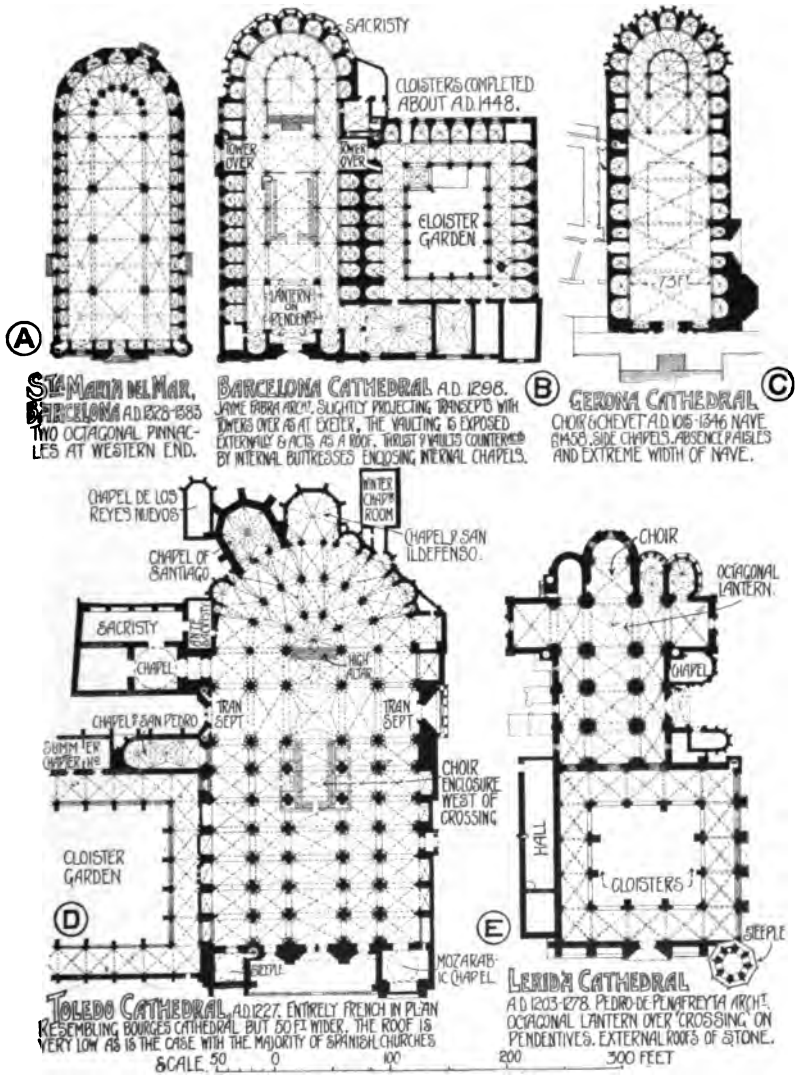
SPANISH GOTHIC.



186.

BURGOS CATHEDRAL.
View of Choir.

SPANISH GOTHIC EXAMPLES.



apsidal sanctuary, in which is placed an immense *retablo* or reredos of wood, flanked by tiers of arcaded statuary upon the sanctuary piers.

S. Gregorio, Valladolid (No. 189) shows the lace-like character of detail derived from Moorish influence.

Barcelona Cathedral (A.D. 1298) (No. 187 B), is remarkable in that the thrust of the vaults is taken by buttresses, which are internal features, as at Albi in the south of France, the space between being used as chapels.

Gerona Cathedral is a further development (No. 187 c), but there are no aisles, the nave being one vaulted hall, 73 feet in width, in four compartments. The Central Hall of the Law Courts, although only 48 feet in width, will give an idea of this interior.

S. Maria del Mar, Barcelona (A.D. 1328-1383) (No. 187 A), is a splendid example of a town church. The vaults rest upon octagonal piers of granite about 4 feet in diameter, the spacing being wide, and the aisles and nave of great height. There is no triforium, and only small clerestory windows in the spandrels of the vaults. Severe simplicity is the characteristic of the church; both inside and out there are no features but a few well-studied mouldings.

Seville Cathedral (1401-1520), erected on the site of a mosque of the same size, is the largest mediæval cathedral in any country. It bears a considerable resemblance to Milan Cathedral, but is less fanciful in detail, or, as some would prefer to say, of a purer Gothic style. The vaulting is rich, loaded with bosses in places, but confused and weak in its lines. Externally there is a certain shapelessness and absence of sky-line. The *parroquia* (parish) church is separate, but included within the cathedral area.

The peculiarity of plan, having a nave, double aisles, and side chapels, was no doubt caused by the structure being made to fill up the space occupied previously by a mosque. It is typically Spanish in having a rectangular outline, but it differs from most of the great Continental churches in having a square east end, and small apse. As showing the extraordinary size of this cathedral it may be pointed out that each of the four side aisles of Seville is practically equal both in height and width to the nave of Westminster Abbey (page 309), while the nave arcades have twice the span, although the total length of Seville is little more than that of the Abbey. Thus one aisle of Seville represents the size of the nave and choir of the abbey, and is repeated four times; in addition to which there is the great nave, 55 feet wide from centre to centre of piers, and 130 feet high. Surrounding the church, and of the same depth as the aisles, are the chapels. From these comparisons an idea can be obtained of the immense size of this Spanish cathedral.

SPANISH GOTHIC.



188. S. JUAN DE LOS REYES, TOLEDO,
Interior, showing Octagonal Dome.

✓

SPANISH GOTHIC.



189.

S. GREGORIO, VALLADOLID.

S. Juan de los Reyes, Toledo, A.D. 1476 (No. 188), is a rich example of a sepulchral chapel, erected by Ferdinand and Isabella, comparing in its intended purpose with Henry VII.'s Chapel at Westminster.

Valencia (A.D. 1262), **Leon** (A.D. 1260), and **Barcelona** (A.D. 1298) **Cathedrals**, all showing French influence, and **Lerida Cathedral** (No. 187 E), externally roofed with stone, are other examples of early date.

In domestic work the best examples are to be found in Catalonia, as seen in **Barcelona** municipal buildings, and **Valencia** town hall.

4. COMPARATIVE.

A. Plans.—In regard to the plan of the cathedrals, the great width and comparative shortness (No. 187) of many of the naves is a prominent characteristic. The position of the choir is generally to the west of the crossing of nave and transepts, as at Burgos (No. 190 L), an arrangement probably derived from the Early Christian basilicas, as S. Clemente, Rome (No. 73 B), and also seen at Westminster Abbey (No. 127), and Norwich Cathedral (No. 118). Chapels are numerous and large, and the parish church is often included in the area of the cathedral, as at Seville.

The *cimborio*, or dome (Nos. 186 and 188), at the crossing of the nave and transepts, is similar in treatment to examples in the south of France. S. Sernin, Toulouse, and Burgos Cathedral resemble each other in plan, and Valencia and S. Ouen, Rouen, in design. Internally octagonal vaults, which are intricate in design and ingenious in construction, are characteristic, and were probably inspired by Moorish work.

B. Walls.—In design French models were favoured, the later work being characterized by extreme, and even wild, ornamentation. There is much flatness and absence of skyline in the exteriors, Burgos having in place of gables effective horizontal arcades, on the lines of the façade of Nôtre Dame at Paris. Traceried open-work spires, as in Germany, were favoured, those at Burgos being worthy of attention (No. 185).

c. Openings.—These were carried to excess in Leon Cathedral, which has not only a glazed triforium, but also a large part of the wall surface of the clerestory glazed as well. Even in the south, as at Seville, openings are of large size, stained glass being much used.

d. Roofs.—Vaulting was used freely, but developed in decoration, rather than in construction, such features as tracery, bosses, and ribs producing a rich effect, although the lines are not always

good, and nothing to compare in interest with English vaulting was accomplished.

In the south, wide interiors, in one span, were successfully vaulted in a simple style, that at Gerona (No. 187 c) being no less than 73 feet span, and having a total length of 270 feet, including *chevêt*. The boldest and most original vaults are the great flat arches, that form galleries across the western ends of the churches, extending through nave and aisles in three spans. Their rich soffits attract attention on entering, and their curves frame the view of, and give scale to, the interior of the church beyond.

E. Columns.—The favourite feature of a lantern at the crossing gives importance to the central piers, which at Burgos (No. 186) are circular in plan (rebuilt 1567), and contrast with the great octagonal piers at S. Sernin, Toulouse.

In Seville Cathedral great column-like piers are employed for all the arcades, similar in effect to those of Milan, but without the tabernacle capitals. Carved capitals of characteristic form are indicated in No. 190 E, J.

F. Mouldings.—Refinement is not the usual characteristic of Spanish art. Original and arbitrary forms were mingled with features borrowed from France. In Catalonia the best and most artistic work was produced in a restrained manner. In S. Maria del Mar, Barcelona (page 430), every moulding has its purpose and expression, but this is far from being the character of other more numerous examples in Spain.

G. Ornament (No. 190).—The most decorative feature in Spanish churches is the vast *retablo* (reredos), which is often as wide as the nave, and reaches up to the vaulting. This feature is usually constructed of wood, stone, or alabaster, and is crowded with niches, figures, canopies and panelling (No. 190 c, F, K).

Those at Toledo and Seville, resembling the great English altar screens, notably that at Christchurch, Hants, are probably the richest specimens of mediæval woodwork in existence.

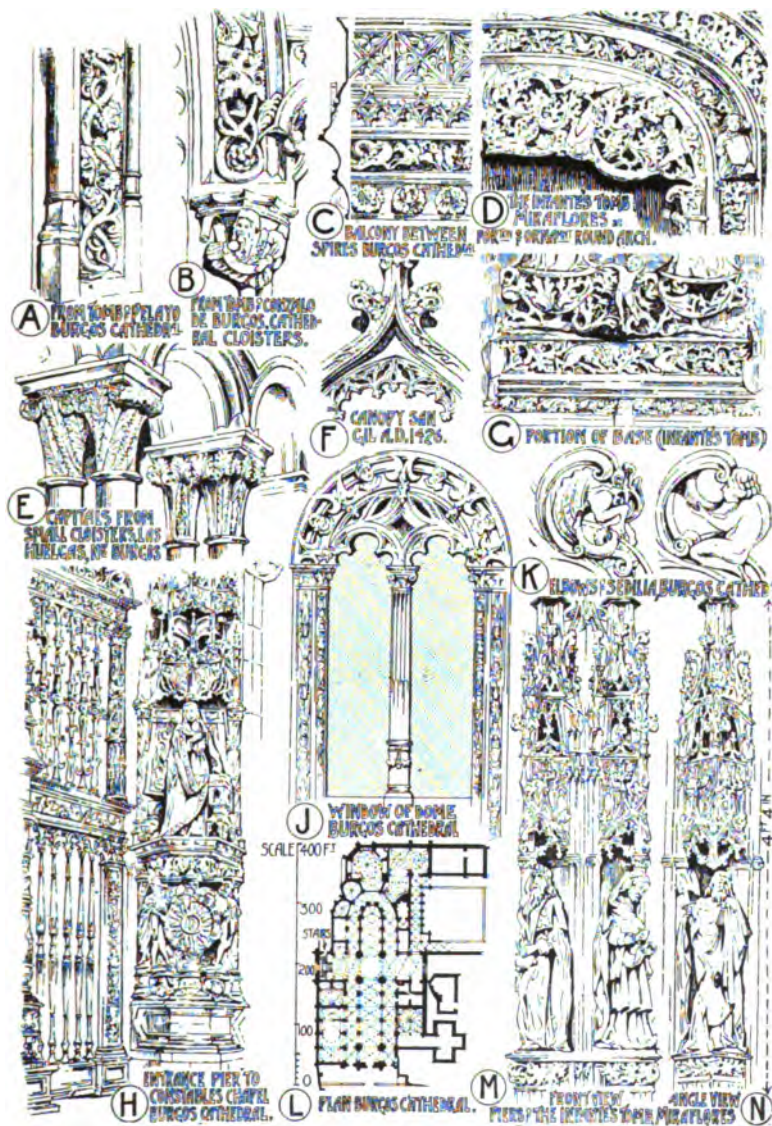
Painting and gilding were used to heighten the effect, the former naturalistic, and the latter of such solidity that the effect of metal is obtained.

Sculpture in stone or marble is often life-size, naturalistic, and expressive (No. 190 H, M, N), and however deficient in other qualities, it combines in producing the notoriously impressive, if sensational, interiors of Spanish churches.

Stained glass was used, as at Seville, Oviedo, and elsewhere, being usually Flemish in style, heavy in outline, and strong to gaudiness in coloring.

'*Rejas*,' or rich and lofty grilles (Nos. 186 and 190 H), in hammered and chiselled iron, are also characteristic, the formality of the long and vertical bars being relieved by figures beaten in *repoussé*, or in duplicates attached back to back, and by freely

SPANISH GOTHIC ORNAMENT.



employed crestings and traceries adapted to the material. Few things in Spain are more original and artistic than these *Rejas*.

Magnificent stalls, each provided with a separate canopy and crowned with a tall spire, are common, Barcelona Cathedral having some resembling those at Chester, while bishops' thrones, pulpits, lecterns and choir desks were also elaborately treated.

5. REFERENCE BOOKS.

"Monumentos Arquitectonicos de España" (a magnificent work issued under the auspices of the Spanish Government). 89 parts, atlas folio (not completed). Madrid, 1859-1879.

Street (G. E.).—"Account of Gothic Architecture in Spain." 8vo. 1874.

Villa-Amil (G. P. de).—"España Artistica y Monumental." 3 vols., folio. Paris, 1842-1850.

Waring (J. B.).—"Architectural Studies in Burgos." Folio. 1852.

Waring (J. B.) and Macquoid (T. R.).—"Examples of Architectural Art in Italy and Spain." Folio. 1850.

Roulet (M. F. N.).—"God the King, My Brother." (Historical Novel.)

RENAISSANCE ARCHITECTURE IN EUROPE.

"New structures, that inordinately glow,
Subdued, brought back to harmony, made ripe
By many a relic of the archetype
Extant for wonder ; every upstart church,
That hoped to leave old temples in the lurch,
Corrected by the theatre forlorn
That as a mundane shell, its world late born,
Lay, and o'ershadowed it."—BROWNING.

GENERAL INTRODUCTION.

THE causes which led to the re-introduction, or re-birth (Renaissance), of Classic Architecture in Europe at the beginning of the fifteenth century, are instructive, and must be grasped in order fully to understand so great a change.

In this section the Renaissance movement as affecting the whole of Europe will be dealt with.

I. INFLUENCES.

i. **Geographical.**—The Renaissance movement, arising in Italy in the fifteenth century, spread from thence to France, Germany, and England, and over the whole of Western Europe—over what had been the Roman empire in the West. The Eastern empire did not come under its influence, for the Greeks in the East, who had been the most civilized people in Europe, were now falling before the Turks.

ii. **Geological.** }
iii. **Climatic.** } Refer to each country.

iv. **Religion.**—The invention of printing, which aided the spread of knowledge, the spirit of inquiry, and the diffusion of freedom of thought, led, among the Teutonic races, to a desire to break away from Romish influence. This desire was originally fostered by Wycliffe in England (A.D. 1377), and by Martin

Luther in Germany (A.D. 1517), in which countries Reformation in religion proceeded side by side with Renaissance in architecture. This renewed vigour in thought and literature was accompanied by a fresh building era in northern Europe. In England, civil and domestic architecture received a special impulse from the diffusion among laymen of the wealth and lands of the monasteries dissolved by Henry VIII.

In Italy, on the other hand, where the Reformation took no hold, and where comparatively few churches had been built in the Gothic manner during the Middle Ages, a revival of ecclesiastical architecture took place, and in every important town Renaissance churches were carried out on a grand scale and in a most complete manner. The Jesuits who headed the counter-reformation carried the style into all parts, at the same time giving it a special character (page 496).

v. Social and Political.—A new intellectual movement manifests itself sooner in literature than in architecture, and thus the former influences the public taste. Dante (1265-1321), Petrarch (1304-1374), and Boccaccio (1313-1375) aided in the spread of the newly-discovered classic literature, which caused a revolt against mediæval art, and the subsequent fall of Constantinople in A.D. 1453 caused an influx of Greek scholars into Italy, whose learning was an important influence in an age which was ripe for a great intellectual change. Thus a revival of classic literature produced a desire for the revival of Roman architecture.

Again, among the MSS. of Greek and Latin authors brought to light about this time, was Vitruvius' book of Architecture, written in B.C. 50, which was translated into Italian in A.D. 1521.

Erasmus (1467-1536), one of the few Greek scholars of the period, worked hard to direct the public attention to the original text of the New Testament, and to the Greek classics, as a set-off to the writings of the mediæval philosophers, whose authority had for so long borne an exclusive sway.

Italian architecture was naturally the first to be affected, because the Gothic style had never taken a firm hold on the Italians, who had at hand the ancient Roman remains, such as the Pantheon, the Basilica of Maxentius, the Colosseum, the remains of the great baths, and the Roman fora. In Italy, therefore, where feudalism had never fully established itself, and where the municipalities had developed a spirit of municipal enterprise, practically a direct return was made to Roman forms.

vi. Historical.—At the beginning of the sixteenth century there was a general grouping together of the smaller states into independent kingdoms, under powerful rulers, who governed with authority, and kept large standing armies. Three great inventions

had an important influence—gunpowder, which had changed the whole method of warfare; the mariner's compass, which led to the discovery of the West Indies (1492) and America, and the foundation of colonies by European states; and, lastly, printing, which favoured that stirring of men's minds which caused the reformation in religion, and the revival of learning. Copper-plate engraving was discovered in the third quarter of the fifteenth century.

Galileo (1564–1642) proved that the earth was not the centre of the universe, but merely a minute planet in the solar system.

2. ARCHITECTURAL CHARACTER.

The Renaissance of the fifteenth century in Italy, and of the sixteenth century in other parts of Western Europe, was a break in that orderly evolution of architecture which is based on the nature and necessities of materials.

In place of such evolution there was the worship of style, that is, of the past results of the nature of materials as formulated into systems. Such results were worshipped for their own sake, and often to a great extent applied regardless of the materials of their execution.

The main features in the style were the Classic orders (Nos. 38, 262), viz., the Doric, Ionic, and Corinthian, which were often used decoratively, as by the Romans, and at other times with their true constructive significance. Buildings designed for more modern wants were clothed in the classic garb of ancient Rome, but it must not be supposed that in this development no advance was made. It is true that Roman precedent was the basis, but columns and pilasters, whether plain, fluted or panelled, with entablature and details, were applied in many novel and pleasing forms, a system in their application being gradually evolved, and a style built up which has become the basis of all modern styles.

Italy, the headquarters of the new movement, in the fifteenth century possessed skilful jewellers and excellent medallists, and it was by their help that the Renaissance commenced and expanded. From their well-known good taste, architects consulted them, and often, indeed, were their pupils, as Ghiberti, Donatello, and Brunelleschi. Men, therefore, who were at once painters, sculptors, architects, silversmiths, jewellers, and goldsmiths somewhat naturally only looked at the finished results as the goal to be aimed at, and were not troubled about the means to such an end. The development of the schools of painting also had their influence on architecture, and aided the tendency which caused structures to be looked upon as works of

art, instead of being dependent mainly for their form and effect on structural necessities. For the same reasons, the period may be looked upon as the age of accessories, in which iron, gold and silver work, and tombs, monuments, altars, fonts, and fountains, were designed in great numbers, and, by the whim and fancifulness of the designer, were special features of the style.

Architecture ceased to a certain extent to be subject to the considerations of use, becoming largely independent of constructive exigencies, and to a greater extent an art of free expression in which beauty of design was sought for.

Speaking generally, there was an endeavour to reconcile the Gothic and the Roman methods of construction, *i.e.*, the body and facing were one and the same thing constructively, because the architects of the period, attracted by the mere external appearance of ancient Roman art, but perceiving that this form was merely an envelope, continued in the matter of construction to a large extent to follow the traditions of the Middle Ages, which did not separate the structure from the decoration.

Owing, therefore, to ignorance of Roman methods, the Roman manner of forming the main walling of concrete and casing it with marble, stone, or brick was not followed.

In the Gothic period each stone was finished, moulded, and sculptured in the workshops before being laid—a method which produced skilful and intelligent masons and stone dressers, and obliged the sculptor to make the decoration suit each piece of stone. In the Renaissance period the new mouldings and carvings could be executed with more exactitude and less expense *in situ*, and thenceforward the necessity of making the jointing accord with the various architectural features being no longer imperiously felt, a want of harmony between the jointing and the architectural features often resulted.

A building, it will be observed, was regarded rather as a picture with pleasing combinations of lines and masses than as a structure of utility, being often designed by men trained as painters, sculptors, or goldsmiths. Such structures often have a princely dignity, as in many of the Roman palaces (No. 197), where the column, pilaster, frieze, and cornice were employed as elements of composition with special regard to the artistic result and with considerable originality. The wide and narrow spacing of the pilasters in the Palazzo Giraud is a novel form (No. 195).

It would be a great mistake, therefore, to state that Renaissance architecture was solely imitative, for new and delightful combinations of features were introduced, and architecture became to a great extent a personal art due to the fancy of individual architects, many of whom founded schools of design, in which their principles were followed by their pupils and followers.

In the decorative detail, also, an advance was made. In

metal work the bronze baptismal gates at Florence were won in competition by the sculptor Ghiberti, in 1404, and are the finest examples of a class of work for which these craftsmen-architects were famous. These accessories of architecture were erected, or added to many old buildings, both in Italy and elsewhere.

The Renaissance architects followed the Byzantine treatment of the Dome, but increased it in importance by lifting it boldly from its substructure and placing it on a "drum," in which windows were formed, thus making it a great external dominating feature (Nos. 202, 212, 254).

Likewise, they were the first to introduce as an architectural "*motif*" the wall of massive rusticated masonry with arched openings, as in the Palazzo Riccardi, Florence (Nos. 191 and 192), the Palazzo Pesaro, Venice (No. 209), and elsewhere, in which buildings the wall was frankly treated as architecture, and was in no way imitative of ancient Roman buildings.

Renaissance Vaulting.—In the beginning of the fifteenth century the Gothic principles of ribbed vaulting were abandoned, giving place to the revival of the Classic method of solid semicircular vaulting (page 117). This type of vaulting was much used in the halls, passages, and staircases of Renaissance palaces and churches, and was besides frequently built of wooden framing, plastered and painted with colored decoration, often of remarkable richness and beauty, as at the Vatican palace by Raphael. In cases of cross-vaulting with narrow and wide spans, it appears that the groins were now formed by means of "*ordinates*" (No. 111 E), with elliptical soffits, groins forming a straight line on plan instead of the wavy line produced by the intersection of a semicircular vault with one stilted above its springing.

Note.—Having now taken a rapid survey of the causes which led to the revival of Classic architecture throughout Europe, and before proceeding to consider the development in each country, a comparison of a few of the more prominent characteristics of the style with the treatment which obtained in Gothic architecture is given.

3. EXAMPLES (refer to each country).

Although important types of church design were evolved, yet in the main the most characteristic monuments were the municipal buildings, palaces, country houses and elaborate façades to town buildings. In addition, chapels, tombs, gates, oratories and public fountains were special creations.

4. COMPARATIVE.

RENAISSANCE.

A. **Plans.**—Symmetry and proportion of part to part carefully studied (Nos. 198, 203, 213, 223, 252).

Grandeur gained by simplicity (Nos. 200, 201, 254). Fewness and largeness of parts have a tendency to make the building appear less in size than it really is.

Towers are sparingly used, and when they occur are symmetrically placed. In England those at S. Paul (No. 254), and Bow Church (No. 255), are exceedingly fine. The dome is a predominant feature (Nos. 181, 205, 212, 223 and 254).

Interiors of churches were planned on Roman principles (Nos. 193, 199 and 203), and covered with domes and pendentives. The parts are few, the nave being divided into three or four compartments (No. 253), by which a general effect of grandeur is produced.

Compare S. Paul, London (No. 213).

B. **Walls.**—These were constructed in ashlar masonry of smooth-faced walling, which, in the lower stories, was occasionally heavily rusticated (No. 192). Materials are large, and carry out the Classic idea of fewness of parts. Stucco or plaster were often used as a facing material where stone was unobtainable. The use of the material according to its nature was lost, the design being paramount.

Angles of buildings often rusticated, *i.e.*, built in blocks of unsmoothed stone, as in Florence, or carefully indented with patterns (No. 197).

GOTHIC.

A. **Plans.**—Picturesqueness and beauty of individual features more particularly sought after (Nos. 117, 155, 159 and 187).

Grandeur gained by multiplicity (Nos. 162, 175 and 189). In consequence of the large number of parts, the building appears larger than it really is.

Towers are a general feature, and are often crowned with a spire (Nos. 110, 114, 115, 116, 121, 140 and 154). Small towers, turrets, and finials help to emphasize the vertical tendency (Nos. 125, 128 and 173). The tower and spire are predominant features.

Interiors are more irregular, and are covered with stone vaulting (Nos. 112, 123), or open-timbered roofs (No. 113). The parts are many, a nave of the same length as a Renaissance church probably divided into twice as many compartments.

Compare Cologne Cathedral (No. 213).

B. **Walls.**—These were often constructed of uncoursed rubble or small stones (No. 136), not built in horizontal layers; also of brick and rough flint work. Materials are small in size, and carry out the Gothic idea of multiplicity. Masonry was worked according to the nature of the material to a new and significant extent. It is not too much to say that, as in a mosaic, each piece in a wall has its value in this style.

Angles of buildings often of ashlar masonry or smooth-faced stone, the rest of the walling being of rough materials, as rubble or flint.

RENAISSANCE.

Gable ends of churches and buildings generally were formed as pediments, with a low pitch (Nos. 193 and 211 K) or of semicircular form (No. 211 A.)

Simplicity of treatment and breadth of mass are prominent characteristics (Nos. 193, 197 and 200) of the style.

C. Openings.—Door and window openings are semicircular (Nos. 206 D and 214 C), or square-headed (Nos. 194 E and 206 A). The influence of climate on these was important. In Italy, with a bright atmosphere, the windows are small. In northern Europe, with a dull climate, windows of the earlier period are large, and often have stone mullions or solid uprights dividing the window space vertically (No. 246). Openings generally come over one another, and are symmetrically disposed with reference to façade.

The Classic system of moulded architrave (No. 94 K) projecting from the wall face was revived. Doorways and other openings are surrounded by such architraves, often richly carved.

D. Roofs.—Vaults are of simple Roman form without ribs. Domes have usually an internal plaster soffit or ceiling, and are painted in colored fresco, upon which they depend for their beauty. The dome over a large space was generally constructed with an inner and outer covering, as S. Paul, London (No. 253). Open-timbered roofs occur, as in the Jacobean halls, but the tendency was gradually to plaster them up (Nos. 242 and 243). All roofs other than domes were hidden in Italy, but were made much of in France and Germany.

GOTHIC.

Gable ends are steep, occupied by windows, and crowned either with sloping parapet or ornamented timber barge boards (Nos. 125, 132 J, 138 and 150).

Boldness and richness of sky-line and intricacy of mass are prominent characteristics (Nos. 121, 125, 161, 162, 164 and 173).

C. Openings.—Door and window openings usually pointed (Nos. 142, 143, 156 and 161), and of considerable size, are divided by mullions, though not necessarily so. This treatment was for the introduction of painted glass, the use or non-use of which means of decoration influenced the size and number of the openings. Often little attention was paid to the centre lines, *i.e.*, the placing of openings over one another. Windows and doors were placed where wanted, without much regard to symmetry of composition.

Openings formed in receding planes (Nos. 94 F J and 143), with mouldings of great richness, were often provided with small circular shafts and carved capitals.

D. Roofs.—Vaulting was developed by means of the pointed arch, and depends for effect on the richness of the carved bosses, on the setting out of the ribs on which the severity of the vaulting rests, and on the grace and beauty of these curves (Nos. 109 and 112). Open-timbered roofs are a beautiful feature of the style, the most perfect specimen in England being Westminster Hall (No. 113 H). Externally roofing is an important element in the design, and in conjunction with chimneys, must be reckoned as a means of effect.

RENAISSANCE.

E. Columns. — The Classic columns and orders were revived and used decoratively in façades, as in the Roman manner (Nos. 195, 196, 197, 200, 205, 219 and 248), and structurally as for porticos (Nos. 193 A, K, 198 G, H and 254). The shafts were often rusticated, fluted spirally, or wreathed with bands of foliage and fruit.

"I, from no building, gay or solemn,
Can spare the shapely Grecian column."

F. Mouldings. — The principal cornice plays an important part in the style, and in the Florentine palaces is bold and impressive (Nos. 191, 192 and 198). Cornices, however, often mark each story (Nos. 207, 209, 210 and 215).

The contours of mouldings follow on Roman lines, as may be seen in the architrave (Nos. 194, 206, 214 and 218), but many new combinations of mouldings were designed.

Cornices and other features of Classic origin (Nos. 191, 192, 197, 198, 207, 209, 210 and 212) occur in every building, and are beautifully carved, refinement being an essential quality.

Cornices, balconies, string bands, and horizontal features generally (Nos. 197 and 209) are strongly pronounced, and by their frequency and importance produce an effect of *horizontality*.

G. Ornament. — The human figure abandoned as a scale, statuary being often much larger than life-size (Nos. 200, 204, 205 and 254)

Stained glass was little used, all the best efforts at color being obtained by means of opaque decoration, as fresco or mosaic, which was lavishly applied to interiors, as

GOTHIC.

E. Columns. — Where used, they were entirely structural, or expressive of pressures upon the piers to which, sometimes, they were attached (Nos. 123, 158, 160 and 177). The relative proportion of height to diameter does not exist, and the capitals and bases were either heavily moulded or carved with conventional foliage.

F. Mouldings. — The parapet, often battlemented, or pierced with open tracery (Nos. 128, 133 and 147), took the place of a cornice, and was less strongly marked than the boldly projecting Classic cornice.

The contours and mouldings are portions of circles joined by fillets, inclosed in rectangular recesses in the early periods, or in later times based on a diagonal splay (No. 146).

Tablets and string courses of carved ornament occur (No. 147), varying in outline and treatment in different centuries. Mouldings depend chiefly for effect upon light and shadow.

Vertical features, such as buttresses casting a deep shadow, numerous pinnacles, turrets (Nos. 153, 154, 162 and 185), high roofs, with towers and spires, produce an effect of *verticality*.

G. Ornament. — The human figure adhered to as a scale, thus helping in giving relative value to parts (Nos. 145 G, 156, 161, 164, 165 A, and 177).

Stained glass was extensively used, being the chief glory of internal decoration, and partly the *raison d'être* of the immense traceried windows, which acted as a frame

RENAISSANCE.

in the Sistine Chapel, Rome, by Michael Angelo.

"Sgraffito" decoration, *i.e.*, scratched and colored plaster, was sometimes applied to exteriors, as in the *Palazzo del Consiglio* by Fra Giocondo (page 490) at Verona.

Great efficiency in the crafts is noticeable in the work of the early Renaissance architects (Nos. 194, 206, 214 and 218), who were often painters and sculptors, *e.g.*, Donatello, Ghiberti, and Della Robbia, examples of their work being in the Victoria and Albert Museum.

GOTHIC.

for its reception (Nos. 124 E, 133, 153 B and 175).

Color for exteriors was dependent on the actual material, as in the colored marbles of central Italy (see No. 181, Florence Cathedral).

Carving was often grotesque and rudely executed (Nos. 165, 174 and 190), but in the best examples, possesses a decorative character in harmony with the architecture. This was effected by the constructive features, such as pinnacles, buttresses, and arches, themselves being enriched.

5. REFERENCE BOOKS (refer to each style).

Note.—It is now necessary to glance briefly through the chief peculiarities of the Renaissance style or manner in each country, noticing the influence of climate and race, and, where possible, the social and political causes which were at work.

As about this period the names of architects begin to be prominently mentioned in connection with their own designs, it will sometimes be convenient to group them into schools for that purpose. In this respect much information may be derived from reading "The History of the Lives and Works of the most celebrated Architects," by Quatremère de Quincy, and the biographies of G. Vasari, Milizia, and others, translations of which are published, and will be found in the R.I.B.A. Library. Interest in their works will be much increased by reading of the influences which directed these master-minds, and the various incidents in their lives which tended to influence their work.

The student should study many excellent examples which have been collected in the architectural courts of the Crystal Palace, the Victoria and Albert Museum, and elsewhere, for it is only by a close study of the details themselves that the style can be thoroughly grasped.

ITALIAN RENAISSANCE.

(See page 227 for Italian Romanesque.)
(See page 404 for Italian Gothic.)

"Come, leave your Gothic, worn-out story.

They love not fancies just betrayed,
And artful tricks of light and shade,
But pure form nakedly displayed.
And all things absolutely made."—CLOUGH

THE Renaissance of Italy varies considerably in the chief centres of the great revival, namely, **Florence**, **Rome**, and **Venice**, and this was due to various social and political causes, which will be enumerated shortly.

THE FLORENTINE SCHOOL.

"Florence at peace, and the calm, studious heads
Come out again, the penetrating eyes ;
As if a spell broke, all resumed, each art
You boast, more vivid that it slept awhile
'Gainst the glad heaven, o'er the white palace front
The interrupted scaffold climbs anew ;
The walls are peopled by the painter's brush,
The statue to its niche ascends to dwell."—BROWNING.

I. INFLUENCES (see page 437).

i. **Geographical.**—It must be remembered that Florence was more than a city, being, in fact, one of the powers of Italy, although its dominions included only a small part of Central Italy. The activity and influence of the Florentines caused a Pope to declare that they were the fifth element.

ii. **Geological.**—The quarries of Tuscany supplied large blocks of stone and marble, which, being near the surface, were easily obtained for building purposes, and the monumental character and massiveness of these materials considerably influenced the style of the architecture.

iii. Climate.—Among other causes which affected the development of the style, the bright and sunny climate rendered large openings for light unnecessary. The character of the climate is well indicated by Tennyson :—

“In bright vignettes, and each complete
Of tower or duomo, *sunny-sweet*,
Or palace how the city glittered
Through cypress avenues, at our feet.”

iv. Religion.—At this period Florence produced the great Dominican preacher, Savonarola, whose reforming energy divided the city, and swayed its policy. He looked to the French king to call a general council to reform the Church. In art he tended to the Puritan theory, and although suppressed by the Pope, his influence on the minds of his generation was not lost, the Sistine frescoes bearing witness to his power over Michael Angelo.

v. Social and Political.—In Italy generally there was a wave of national enthusiasm and patriotic feeling and an endeavour to assimilate the old Roman magnificence in art. The Medici dynasty, so intimately connected with the rise of Florentine art, was founded by John of Medici (died 1429), who took the popular side against the nobles, gradually usurping supreme authority over the State. His son Cosimo (died 1464) employed his wealth liberally in the advancement of art. He founded the Medici Library and Platonic Academy, and was the patron of Brunelleschi, Donatello, Michelozzo, Lippi, Masaccio, and others. Pietro and Lorenzo Medici succeeded Cosimo, and Florence—“the Athens of the Renaissance”—became the centre of the revival in art and literature.

The artists of the period were often at the same time sculptors, painters, and architects, and among these were :—Luca della Robbia (1400–1482), famous for glazed reliefs in terra-cotta, some of which are in the Victoria and Albert Museum; Lorenzo Ghiberti (1378–1455), the sculptor of the bronze gates to the Baptistery, reproductions also being in the same Museum; Donatello (1386–1466); Mino da Fiesole (A.D. 1431–1484), and Benedetto da Majano (A.D. 1442–1497), famous for his bas-reliefs and statues at Florence and elsewhere. As showing the commercial prosperity of Florence, it is worthy of note that the golden florin was first coined in that city in 1252, and soon became the general standard of value in Europe.

As rival parties in the city were engaged in constant hostilities, safety and defence were primary motives in building, the palaces being in reality semi-fortresses.

vi. Historical.—Florence commenced to grow in importance on the removal of the inhabitants of Fiesole to the banks of the Arno in 1125.

The grouping together of the independent commonwealths of Italy is a feature of this period, and, as in ancient Greece, one city bore rule over another. Pisa became subject to Florence in 1406, and the latter gradually became the chief power in Italy, and also in the fourteenth century the artistic capital. During this period the nobles were at constant feuds with each other, being divided into the hostile camps of Guelphs and Ghibellines (pp. 230, 259), the former being generally successful. Dante Alighieri (1265-1321) took part in these conflicts, but eventually the wealthy family of the Medici became the ruling power in the State (see above). In 1494 Charles VIII. of France occupied Florence, during his brief invasion of Italy, which arose from his claims on the kingdom of Naples. The short-lived republic of Savonarola (see above) followed, but the Medici, in spite of successive banishments, were finally reinstated by the Emperor Charles V., who, acting on behalf of the Ghibellines, took the town in 1530. During a siege of eleven months, Michael Angelo acted as the engineer of the republic. The suppression of political liberty followed, especially under Cosimo I. (1537-1564), who, however, greatly extended the Florentine dominions, Siena being ceded to him in 1557 by the Emperor. His successors, the Grand Dukes of Florence, followed, until in 1737, the House of Medici becoming extinct, the Duchy passed into the hands of Austria. In 1801, as the Republic, and afterwards as the Kingdom of Etruria, it enjoyed political freedom with the exception of the years 1807-1814, during which time it was incorporated with France, but in 1860 it was united to the Kingdom of Italy.

2. ARCHITECTURAL CHARACTER.

The massive blocks of rusticated masonry in the lower stories (No. 192) of the Florentine palaces give to these buildings that character of solidity and ruggedness for which they are remarkable. The palaces were all built round interior courts, possibly derived from the arcaded cloister of the mediæval monastery, the walls resting on columnar arcades (No. 191). The general absence of pilasters, as decorative features, is specially noticeable in the design of the palaces, which are therefore called "astylar." The sparing use of carved detail, and in fact of features of any kind, gives a marked character of simplicity to the style. The grand effect of these palaces is considerably aided by the massive cornice which crowns the structure, being proportioned to the whole height of the building, as in the Riccardi Palace (No. 191 D). The columnar arcade is a special feature, as in the Ospedale degli Innocenti and the Loggia S. Paolo, and mural monuments and altars are exceedingly rich with sculpture and decoration.

The types of doors and windows may be divided into three groups:—

(a.) The *arcade* type, usual in the heavily rusticated examples, consists of a round arch, in the centre of which is a circular column supporting a simple piece of tracery (Nos. 191 and 194 D); as at the Strozzi, Pitti, and Riccardi Palaces.

(b.) The *architrave* type is that in which mouldings inclose the window, and consoles on either side support a horizontal or pediment cornice, as in the courtyard of the Pandolfini Palace and in the Palazzo Riccardi (No. 192).

(c.) The *order* type is that in which the opening is framed with a pilaster or column on each side supporting an entablature above, this being the final development, as employed in the Pandolfini Palace, ascribed to Raphael, and also shown in No. 194 F.

3. EXAMPLES.

Note.—Having reached the period when the personality of the architect has increased in importance, the chief works of Brunelleschi, Alberti, and others, as being the leaders of the Florentine school, will be briefly enumerated.

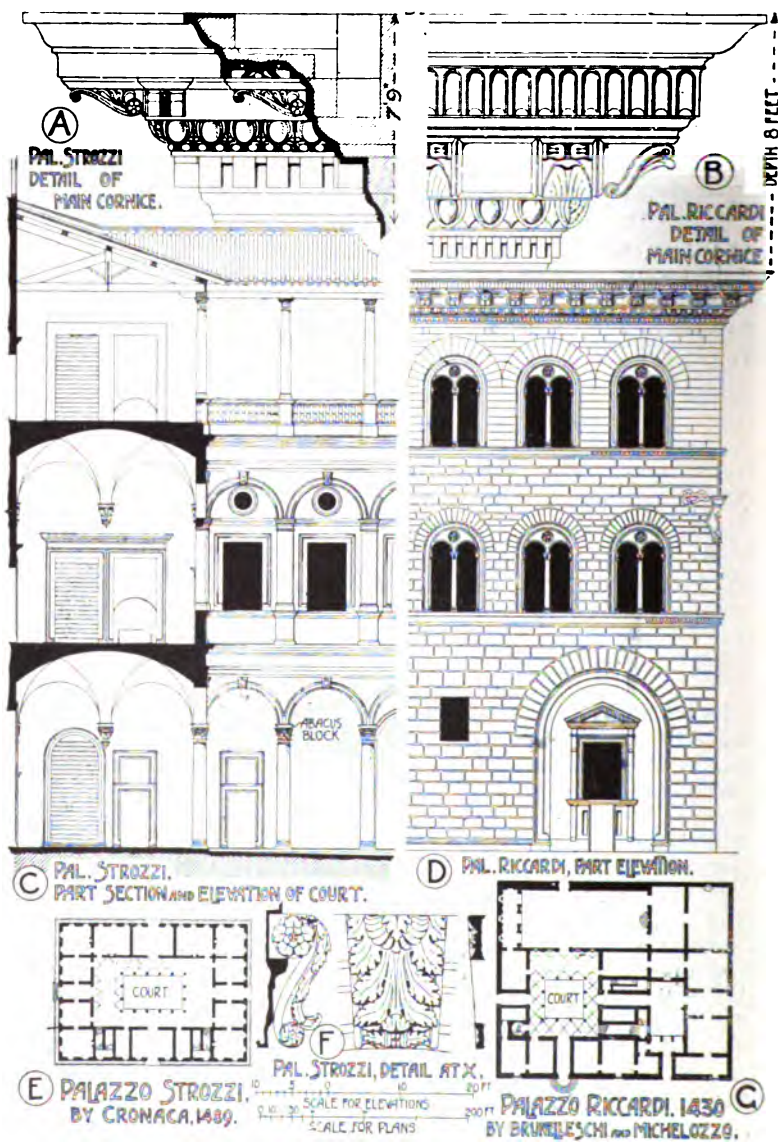
BRUNELLESCHI (A.D. 1377-1446),

a Florentine by birth, studied the features and construction of the Pantheon and other examples of Roman architecture, which henceforth exerted a considerable influence over his works, his main object being to complete the unfinished dome over the Cathedral of Florence.

The **Dome of Florence Cathedral** (A.D. 1420-1434) (Nos. 176 and 181) was Brunelleschi's principal work, his design being accepted in competition. It is said that it was constructed without any centering, with voussoirs having horizontal joints. It covers an octagonal apartment 138 feet 6 inches in diameter, and is raised upon an octagonal drum in which are circular windows lighting the interior. The dome itself is constructed of inner and outer shells, and is pointed in form, being constructed on a Gothic principle with eight main ribs and sixteen intermediate ribs.

S. Lorenzo, Florence (A.D. 1425) (No. 193 D), and **S. Spirito, Florence** (No. 193), are both examples of churches on the basilican plan, the latter having aisles formed round the transepts and choir, and a flat wooden ceiling to nave, and is probably the earliest

FLORENTINE RENAISSANCE EXAMPLES. I.



ITALIAN (FLORENTINE) RENAISSANCE.

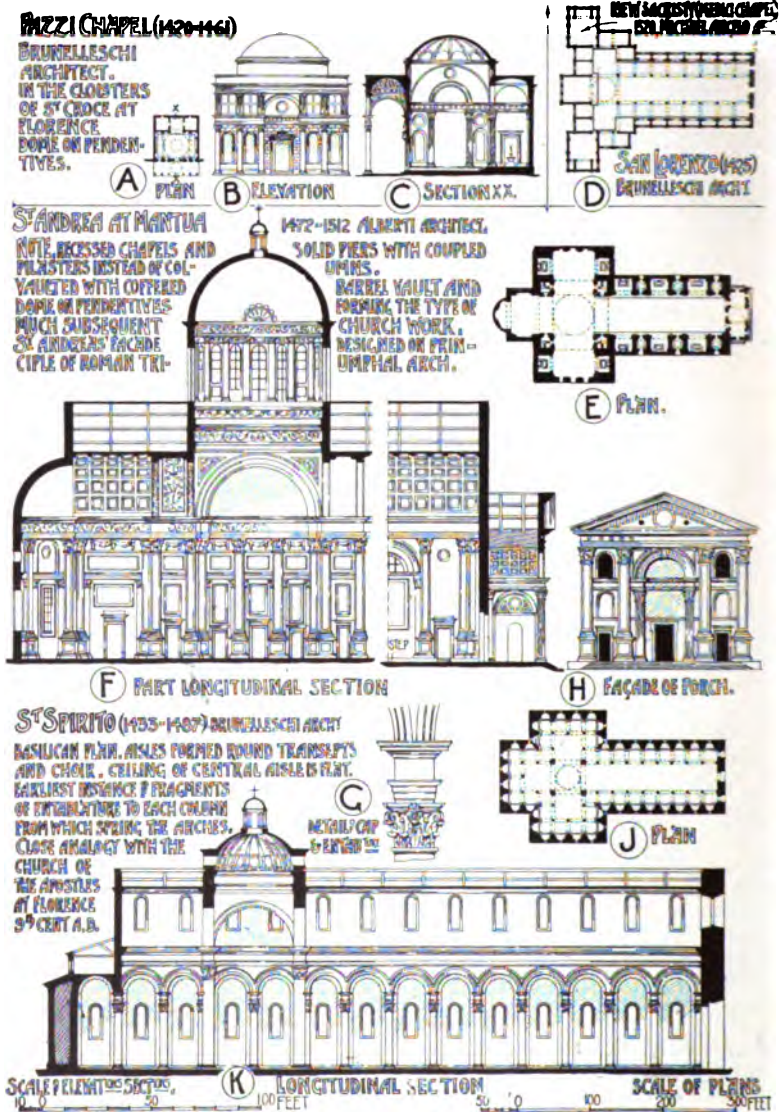


192.

PALAZZO RICCARDI, FLORENCE.

G G 2

FLORENTINE RENAISSANCE EXAMPLES. II



instance where isolated fragments of entablature are placed on each column with the arches springing from these.

The **Pazzi Chapel, Florence** (in S. Croce) (A.D. 1420) (No. 193 A, B, C), is a refined example of his smaller works, consisting of a dome over a square compartment, which is entered through an open colonnade of six columns supporting a decorated vault and forming the front façade.

The **Riccardi Palace** (1430) (Nos. 191 and 192) and the **Pitti Palace** (1440), in both of which he appears to have been associated with Michelozzo (1397-1473), are examples of the massive rusticated buildings with heavy crowning cornice for which the Florentine style is noted.

ALBERTI (1404-1472)

was a scholar deeply interested in classical literature, and his works exhibit more decorative treatment and are less massive than those of Brunelleschi. He wrote a work on architecture, "*De Re Ædificatoria*," which largely influenced men's minds in favour of the revived Roman style.

The **Rucellai Palace, Florence** (A.D. 1451-1455) is known as the first Renaissance building in which superimposed pilasters were used, and shows a lighter and more refined character, although dignity was lost compared with the Pitti Palace, by the reduction in size of the great crowning cornice.

S. Francesco, Rimini (A.D. 1447-1455), a thirteenth century Gothic church, was remodelled in the revived style, but the façade was never completed.

S. Maria Novella, Florence (A.D. 1470), was one of the first churches in which consoles were placed in the façade over the side aisles to connect them with the nave.

S. Andrea, Mantua (A.D. 1472-1512) (No. 193), is particularly notable and important as the type of many modern Renaissance churches, and consists of a single nave with transepts, the interior ornamented with a single order on pedestals supporting a barrel vault. Chapels, alternating with entrance vestibules, take the place of the customary aisles on each side of the nave. Over the intersection of the nave with the transept is a dome, in the drum or lower portion of which are windows lighting the interior. The chancel is apsidal, lighted by three windows, which cause the entablature to be mitred round the pilasters of the order which carry the lunetted half dome of the apse.

The perfection of the proportions makes the interior of this church one of the grandest in the style, and the front is reminiscent of a Roman triumphal archway.

The **Strozzi Palace** (1489) (No. 191), and the **Gaudagni Palace**, both by Cronaca, are other Florentine examples.

Note.—Characteristic Florentine ornament is shown in No. 194

4. COMPARATIVE (see page 490).

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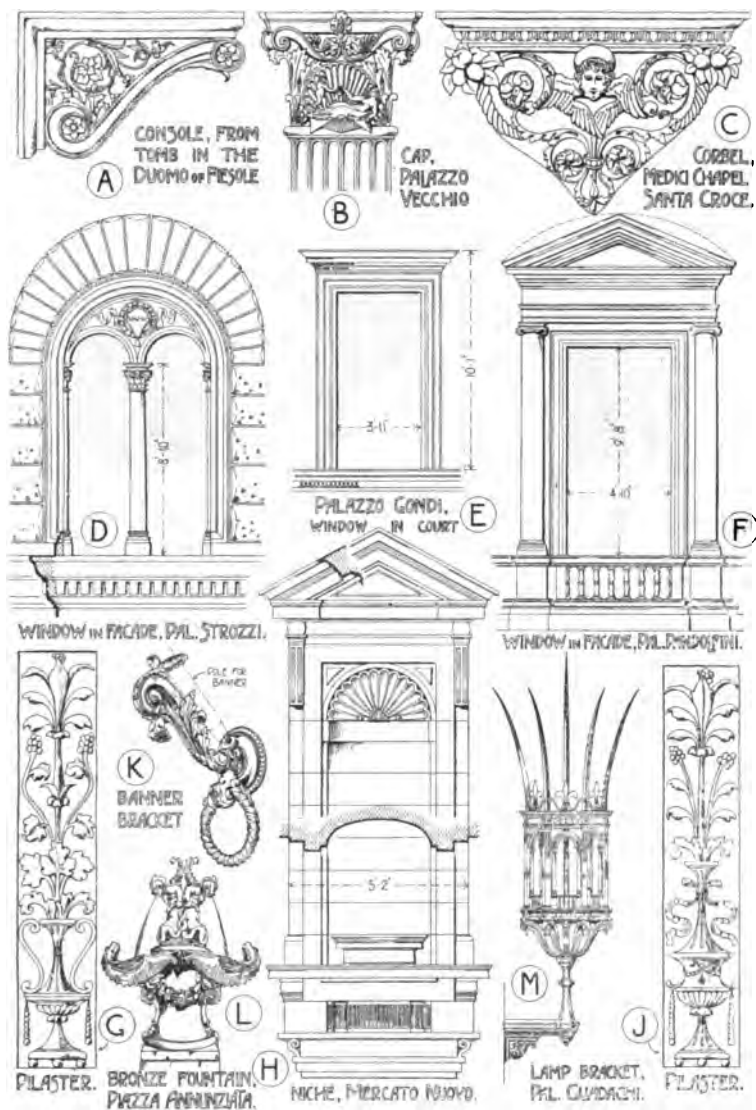
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FLORENTINE RENAISSANCE ORNAMENT.



THE ROMAN SCHOOL.

"See the wild waste of all-devouring years !
How Rome her own sad sepulchre appears !
With nodding arches, broken temples spread."—POPE.

I. INFLUENCES (see page 437).

i. **Geographical.**—The unique character of Rome as an influence was its prestige as the capital of an empire that had crumbled away, and whose architecture was now being revived. The ruins and new buildings are important as forming models for the whole of Europe.

ii. **Geological.**—The remains of old Rome, such as the Colosseum, Pantheon, and colonnades, formed the quarry from which much of the material for the Renaissance buildings was extracted.

iii. **Climate.**—(See pages 112, 404.)

iv. **Religion.**—The return of the popes from Avignon to Rome in A.D. 1376 helped to restore her to her former position of importance and prosperity. From the time of the Council of Constance, 1415, the popes took a more prominent position as Italian princes, and during the fifteenth century they greatly extended their temporal dominions in Italy. Some hoped that Italian unity would be effected under the papal sway, and Cæsar Borgia, nephew to Alexander VI., proposed to effect this by absorbing the Italian states as one would eat an artichoke—leaf by leaf. Julius II. besieged Bologna in person, as sacred and secular capacities were often combined in the same pope. The Jesuits, founded in the later Renaissance period, existed to counteract the Reformation, by rendering the papal influence universal (see below).

v. **Social and Political.**—In Rome a central government existed, in consequence of which party spirit was checked, and fortified palaces were not necessary as in Florence. Rome was the home of the old classic traditions, which naturally exerted great influence in any new development.

During the fifteenth century the popes were temporal princes, and great patrons of art and learning. Splendid new palaces and churches were erected, and the decoration of old ones carried on by successive painters of whom Peruzzi, Raphael, Michael Angelo, and others were eminent. A school was created for artists and workmen, who afterwards spread abroad the style of the Renaissance in other parts of Italy and beyond.

vi. **Historical.**—During the absence of the popes at Avignon, the factions of the barons continued unchecked, except during the brief rule of Rienzi's republican state in 1347. The return of the popes took place in 1376 under Gregory XI. The scandal of rival

popes at Rome and Avignon was terminated in 1415 by the Council of Constance, after which Rome rapidly gained in wealth and prestige. Julius II., a warlike and ambitious pope, extended the temporal power, and founded the new cathedral of S. Peter and the Vatican.

Rome was, for the last and seventh time, taken and plundered on the 6th May, 1527, by the Emperor Charles V.

Spanish influence became powerful, and was not always exerted for good, but it was replaced by that of France, which was strong under Louis XIV. The growth of the power of Austria was next felt throughout the Peninsula, until the rise of national feeling which, though checked in 1848, led in 1870 to Rome becoming the capital of New Italy. This remarkable revolution was effected without Rome ceasing to be the headquarters of the papacy.

2. ARCHITECTURAL CHARACTER.

The Classic orders were largely used in the façades and courtyards (Nos. 195, 196 and 200), and a general attempt at correctness and conformity to the ideas of ancient Roman architecture prevailed. The size and simplicity of the palaces of Rome produce an effect of dignity (No. 197).

The principle which animated architects in the later school was that of unity, which they endeavoured to attain by making a whole building appear to be of a single story; thus two or more stories were included by an order of pilasters, which was sometimes crowned by an attic, but never by another superimposed order. Arcuation was only sparingly introduced, except in the form of tiers of arcades, in imitation of the Colosseum.

3. EXAMPLES.

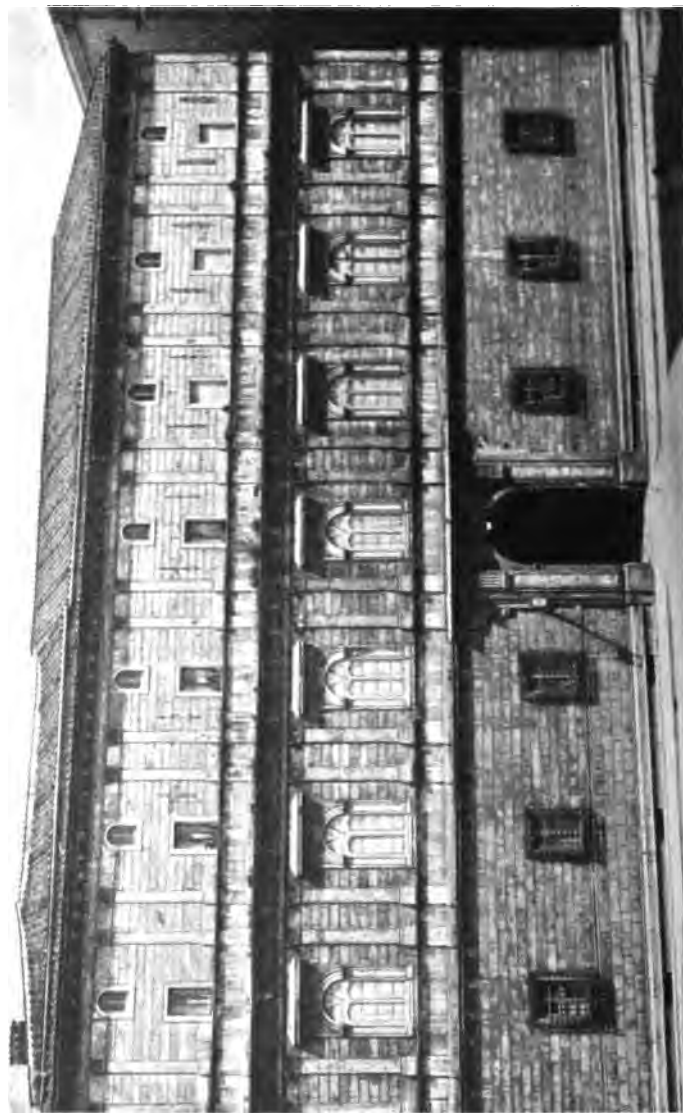
BRAMANTE (1444-1514),

the first Roman architect of note, was born in the year that Brunelleschi died, educated as a painter under Andrea Mantegna, and was probably a pupil of Alberti. He was a Florentine by birth, but studied at Rome, practising first in the city of Milan, and in the ducal dominions.

S. Maria della Grazie, Milan (A.D. 1492), an abbey church of the fifteenth century, to which Bramante added the choir, transepts and dome, is essentially transitional in style with Gothic feeling, but is most successful and suitable in detail for the terra cotta with which it was constructed.

The **Cancellaria Palace** (A.D. 1495-1505) (No. 196) and the **Giraud Palace** (1503) (No. 195) are examples of Bramante's later works, in which a more pronounced classical tendency is seen.

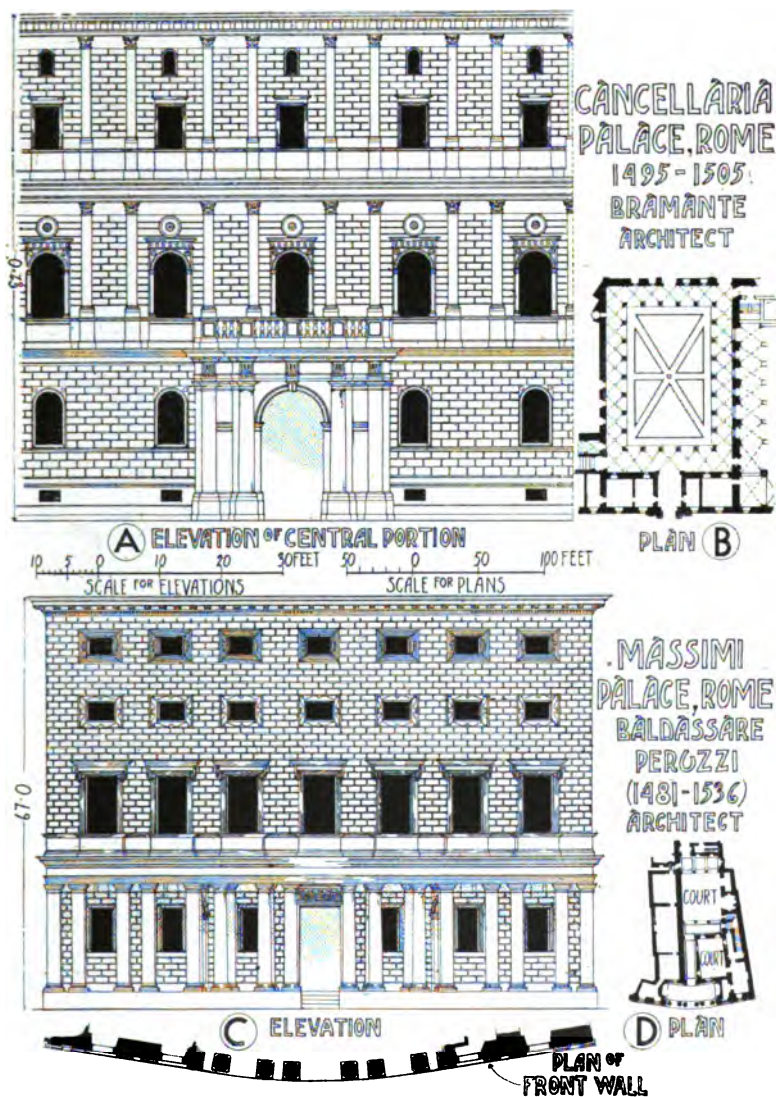
ITALIAN (ROMAN) RENAISSANCE.



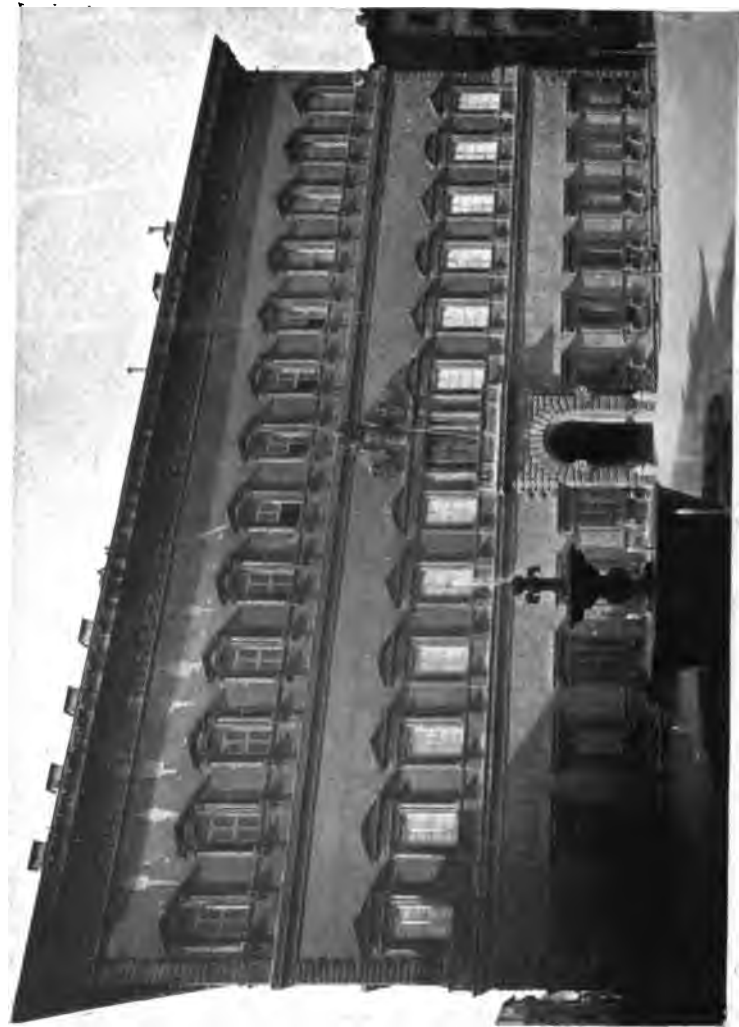
195.

PALAZZO GIRAUD, ROME.

ROMAN RENAISSANCE EXAMPLES. I.



ITALIAN (ROMAN) RENAISSANCE.



197.

FARNESE PALACE, ROME.

The **Cortile of S. Damaso**, the **Cortile delle Loggie**, and the **Greater and Lesser Belvedere Courts** in the **Vatican** (A.D. 1503), are well-known examples of his secular work.

The **Tempietto in S. Pietro in Montorio** (1502) is a perfect gem of architecture, the internal diameter being only 15 feet (No. 199 A, B, C), founded in design on the small Roman circular temples.

S. Maria della Pace, Rome, erected in 1484, had its later cloister court of arcades supporting columns constructed in 1504 by Bramante.

Bramante's works of the middle period especially exhibit great refinement in mouldings, carving, and detail; thus he uses flat pilasters, and circular-headed openings, framed by square lines (Nos. 196 A and 206 D). His "Ultima Maniera" is seen in the bold and grand designs for the Courts of Law (never finished) near the Tiber, and in his "projects" for S. Peter (No. 203 D).

An article on "The School of Bramante," by Baron von Geymüller, which appeared in the R.I.B.A. Transactions, 1891, is interesting, as tending to show the influence which Bramante, who may be called the "continuator" of the style of Alberti, exerted on the development of the Renaissance in Rome and in every European country.

BRAMANTE'S PUPILS AND FOLLOWERS.

Baldassare Peruzzi (1481-1536) was the architect of several buildings at Rome, and few architects of the school were so well trained, and able to execute works so finished in detail, whether of plan, section, or elevation.

The *Massimi Palace, Rome* (A.D. 1536) (No. 196 C, D), an example full of refinement and beauty, both in design and detail, is especially interesting in the way the convex-façade has been treated.

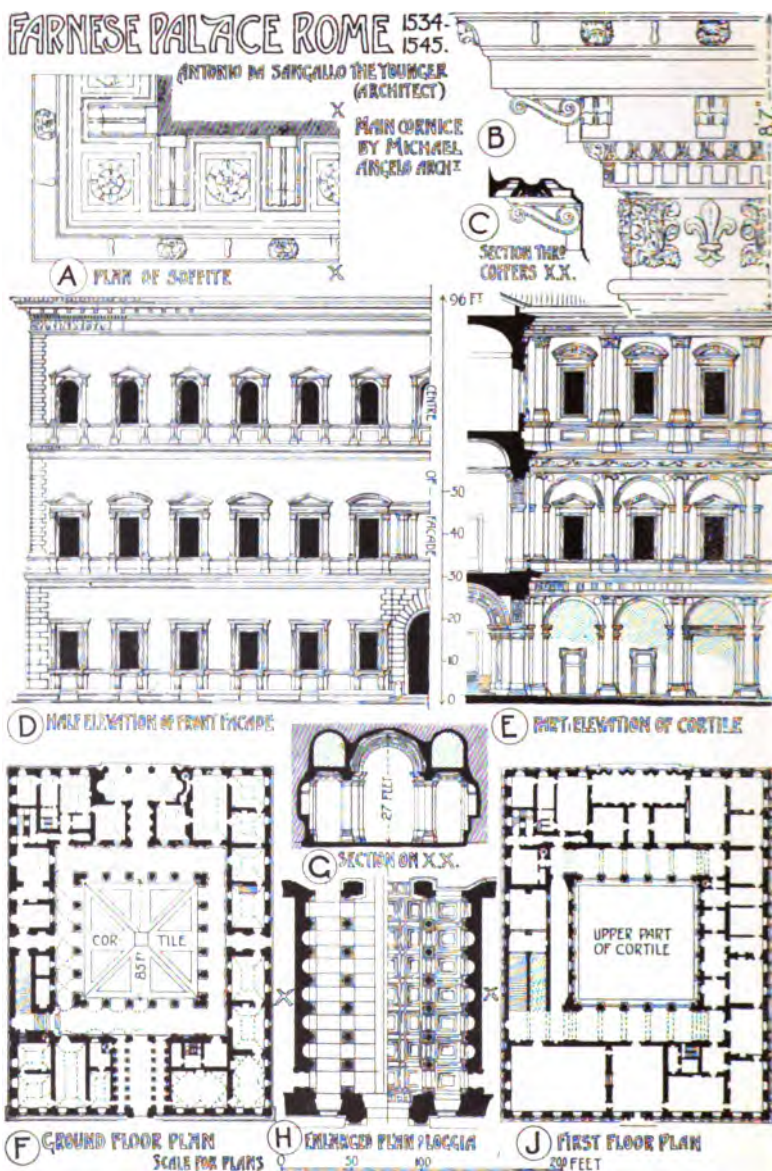
The *Villa Farnesina, Rome* (A.D. 1506), is a two-storied structure (each story comprising an order) with boldly projecting wings, central arched loggia and rich crowning frieze. The latter was ornamented with cupids holding festoons, and contained windows, a system afterwards made use of by Sansovino in the Library of S. Mark (No. 210). The remarkable frescoes of this building were executed by Peruzzi and Raphael.

Dorchester House, Park Lane, London, by Vulliamy, was founded on this design.

S. Maria della Consolazione, Todi (1508-1604) (No. 199), by Cola da Caprarola, is ascribed to his influence, but is overladen with pilasters.

Ant. da Sangallo the younger (A.D. 1485-1546) erected the *Farnese Palace, Rome* (Nos. 197 and 198). This is the grandest of all the examples of the school, and is executed in brick walling

ROMAN RENAISSANCE EXAMPLES. II.



with travertine dressings from the Colosseum. Columns or pilasters are used only in a special way to form frames to the windows, each of the stories being well marked horizontally by projecting string courses. The grand crowning cornice, which was a special feature in the original design (No. 198 B) was added later by Michael Angelo. The internal open court ("cortile") is in the style of the Colosseum, and a reduced cast of a portion of it may be seen in the Italian Renaissance Court at the Crystal Palace, and the "*motif*" was followed for the Reform Club, London.

Raphael (A.D. 1483-1520) was the nephew and pupil of Bramante, but authorities differ as to his exact responsibility for the designs ascribed to him.

At Rome, he was engaged on S. Peter, but did little. He designed the façade of *S. Lorenzo in Miranda*, and also the *Villa Madama* (A.D. 1516), the stucco decorations being by Giulio Romano.

The *Pandolfini Palace, Florence*, erected in 1530 (ten years after his death), is one of his most famous designs, the "*motif*" being afterwards followed for the Travellers' Club, London.

The excavation of the Baths of Titus gave Raphael an opportunity of studying the interior decoration of ancient Roman buildings, and the use of hard stucco with painted decorations was one of the things he learned from these remains. The surface of the vaulting was found to be painted with studies from the vegetable kingdom, with figures of men and animals, and with such objects as vessels and shields, all blended together in fanciful schemes, rendered pleasing by bright coloring.

The designs for the decoration of the *Vatican Loggie*, which he carried out, were based on these Roman examples.

Giulio Romano (A.D. 1492-1546) was a pupil of Raphael, and was the architect of buildings at Mantua, including his masterpiece the *Palazzo del Té*, which is a one-story building, decorated with the Doric order. It is quadrangular in plan, and comprises large saloons round a central court. The recessed arcaded façade to the garden and the painted ceilings are remarkable, and the design is perhaps the nearest approach made on the part of a Renaissance architect to reproduce the features of a Roman villa.

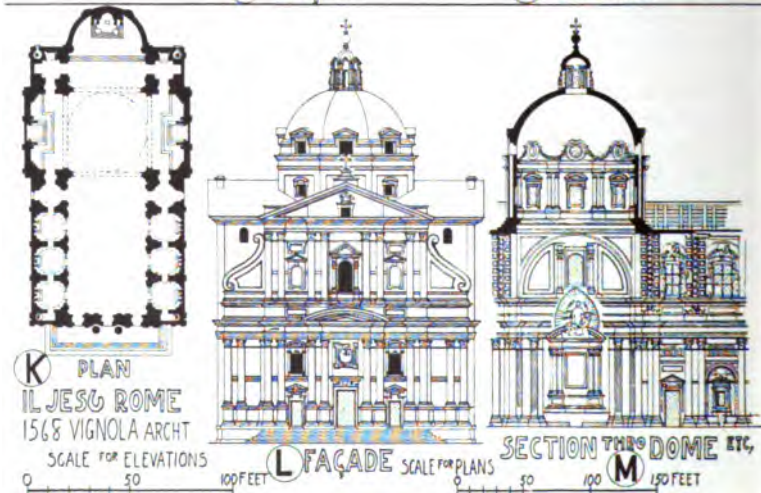
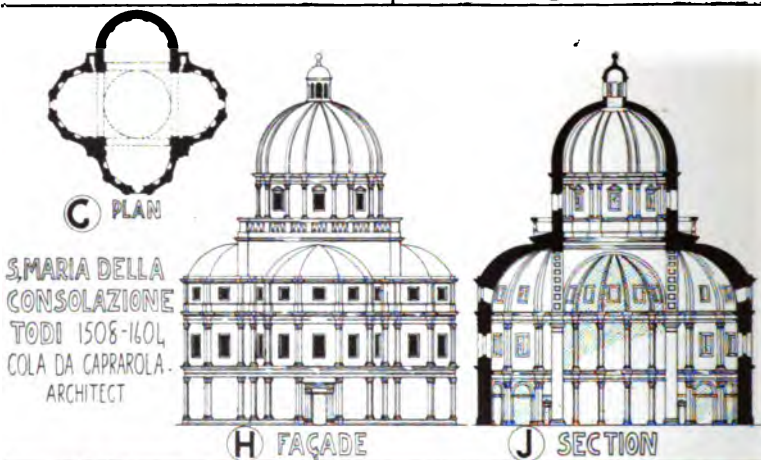
G. BAROZZI DA VIGNOLA (A.D. 1507-1573)

exercised great influence by his writings, and was the author of "*The Five Orders of Architecture*." Being taken back to France by Francis I. (page 497), he exercised a great influence on the development of French Renaissance architecture.

The *Villa of Pope Julius*, now the Etruscan Museum, **Rome** (A.D. 1550) (No. 238 D, E), is one of his best known works.

The *Palace of Caprarola* (No. 201) is a pentagonal semi-

ROMAN RENAISSANCE EXAMPLES. III.



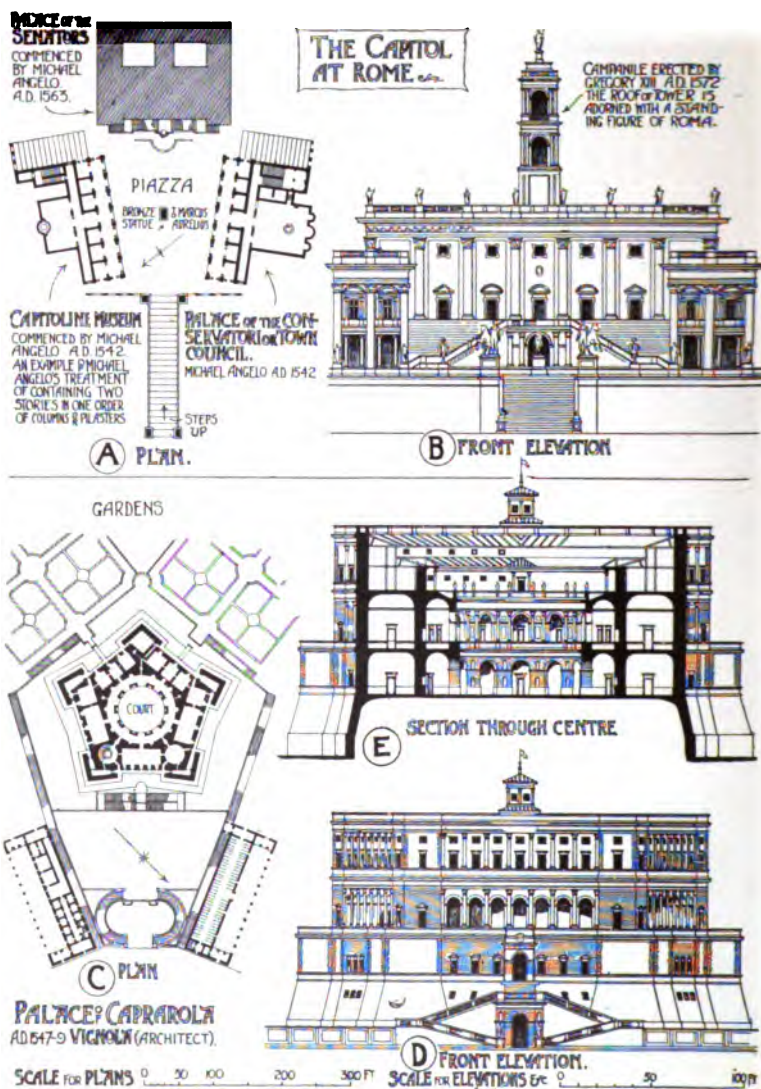


200.

THE CAPITOL, ROME.

(*Centre*) Palace of the Senators, by Michael Angelo (1563).
 (*Right*) Palace of the Conservatori, do. (1542).
 (*Left*) Capitoline Museum, do. (1542).

ROMAN RENAISSANCE EXAMPLES. IV.



fortress situated on the spur of a mountain looking down into the valley, recalling Hadrian's tomb in mass and outline, while the internal circular court is suggestive of the Colosseum at Rome (see the *Château de Chambord*, page 500).

S. Andrea, Rome (A.D. 1550) (No. 199) one of his earlier and smaller works, is a simple oblong on plan having an elliptical dome with pendentives.

The **two small cupolas at S. Peter** (No. 203 E), and the unfinished **municipal palace at Bologna**, are other works.

The **Gesù Church** (A.D. 1568-1632) (No. 199) is one of many designed on the lines of S. Peter, Rome.

MICHAEL ANGELO (A.D. 1474-1564),

a famous Florentine sculptor, and painter of the roof of the Sistine Chapel in the Vatican (A.D. 1508), representing the Fall and Redemption of Mankind, also turned his attention, late in life, to architecture, but reckless detail mars his work. He finished the Farnese Palace, and carried out the **Dome of S. Peter** (page 471), but perhaps his best work was the reconstruction of the **Palaces of the Capitol** (A.D. 1540-1644) (Nos. 200 and 201), grand examples of one-order buildings.

His principal works at Florence were the **Mausoleum** (or New Sacristy) (A.D. 1520) (No. 193 D), having statues of his patrons, Lorenzo and Giuliano de Medici, and the **Laurentian Library** (A.D. 1524), both at S. Lorenzo.

S. Peter, Rome (1506-1626), was the most important building erected in the period, and many architects were engaged upon it. In plan (Nos. 203 and 213) it was a Greek cross, the later extension of the nave and aisles toward the east practically bringing the whole scheme to a Latin cross. This was probably effected so as to inclose the whole of the area of the previously existing church (No. 75 C). The nave, 80 feet wide, consists of four bays of immense size, the central crossing is covered by the dome, 137 feet 6 inches in diameter, and the short transepts are terminated by semicircular apses, the western arm being precisely similar. The high altar stands under the dome, within a "baldachino," 100 feet high, over the alleged tomb of S. Peter. A vestibule at the East end extends the whole width of the church, the chancel being at the west end.

The interior (No. 204) has one gigantic order of Corinthian pilasters, crowned with semicircular barrel vaults, 150 feet high. The walls are faced with plaster, and colored to imitate marble, producing a rich effect, and the dome is beautifully decorated in mosaic.

"No single parts unequally surprise,
All comes united to th' admiring eyes."—POPE.

ITALIAN (ROMAN) RENAISSANCE.

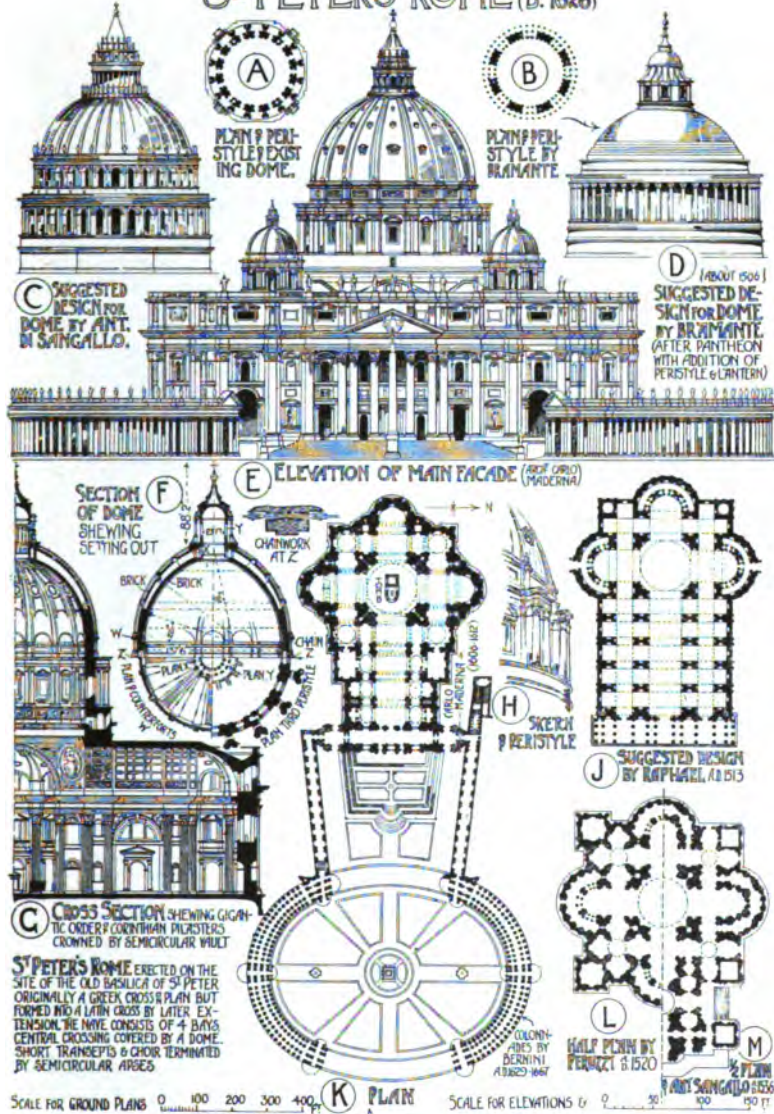


202.

S. PETER, ROME.
Showing Colonnades. (From a model.)

ROMAN RENAISSANCE EXAMPLES. V.

ST PETER'S ROME (A. 1506) (D. 1626)



ITALIAN (ROMAN) RENAISSANCE.



The exterior (Nos. 202, 203 and 205), roughly executed in travertine, has an immense order of Corinthian pilasters, 108 feet high including entablature, with an attic 39 feet high surrounding the entire building. The view of the dome from the east except at a distance, is nearly cut off behind the screen wall of the now extended nave. The design owes much to the circular four-fold colonnades added by Bernini in the seventeenth century, which inclose one of the noblest entrance courtyards in Europe. A good idea of the building, in its general distribution, is to be obtained from the model at the Crystal Palace, in which, however, as in most drawings of the church, the detail is rendered less offensive by its smaller scale.

S. Peter was recognized as a model of which numberless churches were erected throughout Italy.

The following is a synopsis of the history of this building :—

- A.D. 1506.—*Bramante*, the original architect, formulated a design in the form of a Greek cross with entrances at East end. His design for the dome is shown in No. 203 B, D. Foundation stone laid.
- A.D. 1513.—*Giuliano da Sangallo* (d. 1516), *Raphael*, and *Fra Giocondo* (d. 1515), were entrusted with superintendence of the work. Division of opinion existed as to altering original plan to a Latin cross. Raphael's suggested ground plan is shown in No. 203 J.
- A.D. 1514.—Death of Bramante.
- A.D. 1520.—Death of Raphael.
- A.D. 1520.—*Baldassare Peruzzi* appointed architect, but died 1536. His suggested plan is shown in No. 203 L. The capture and sack of Rome disorganized all artistic work.
- A.D. 1536.—*Antonio da Sangallo* the younger succeeded him as architect (d. A.D. 1546). Proposed a picturesque design of many orders, with a central dome (No. 203 c) and lofty campanili. His plan is shown in No. 203 M.
- A.D. 1546.—*Michael Angelo* appointed architect. He rejected the innovations of Sangallo, restored the design to a Greek cross, strengthened the piers of the dome, which had shown signs of weakness, and simplified the form of the aisles, in which process the masterly planning of the accessories, by Raphael, which were to give scale to the interior, disappeared. He planned and commenced the construction of the great dome, 137 feet 6 inches internal diameter, the drum of which he completed, and at his death (1564) left drawings and models for the completion of the work up to the lantern, the top of which is 405 feet from the ground.
- A.D. 1564.—*Vignola* continued the building of the church,

ITALIAN (ROMAN) RENAISSANCE.



adding the cupolas on either side of the great dome. These (Nos. 202, 203 E), excellent in themselves, are ineffective in relation to the whole mass.

A.D. 1585-1590.—*Giacomo della Porta* and *Domenico Fontana* erected the dome from Michael Angelo's wooden model.

A.D. 1605-1612.—*Cario Maderna*, instructed by Paul V., lengthened the nave to form a Latin cross (No. 203 K), and erected the present contemptible façade (No. 203 E).

A.D. 1612.—*Rainaldi* appointed architect and prepared designs for campanile, but effected nothing.

A.D. 1629-1667.—*Bernini* erected the fourfold colonnades inclosing the piazza, 650 feet wide, in front (Nos. 202, 203 K, E and 205). He also erected the brazen baldachino under the dome (No. 204) with metal taken from the portico of the Pantheon.

“With arms wide open to embrace
The entry of the human race.”—BROWNING.

In Baron von Geymüller's book, already mentioned, there is a plan, with the portions of separate dates colored differently, which is very interesting, and also a comparison drawn between the fundamental principles of design which characterize each scheme.

Compare plans (No. 213):

	S. Peter.	Milan (No. 176).	S. Paul.	S. Sophia (No. 80)	Cologne
Area in sq. yds.	18,000	10,000	9,350	8,150	7,400
Length in yards.	205	148	170	118	156
		Pantheon (No. 54).			Florence (No. 170).
Diam. of dome.	137 ft. 6 in.	142 ft. 6 in.	109 ft.	107 ft.	138 ft. 6 in.

Other examples in Rome are:—

The **Papal Palaces** (A.D. 1574-1590) on the Lateran, Quirinal and Vatican Hills, and the **Chapel of Sixtus V.** in S. Maria Maggiore (A.D. 1543-1607), were by Fontana.

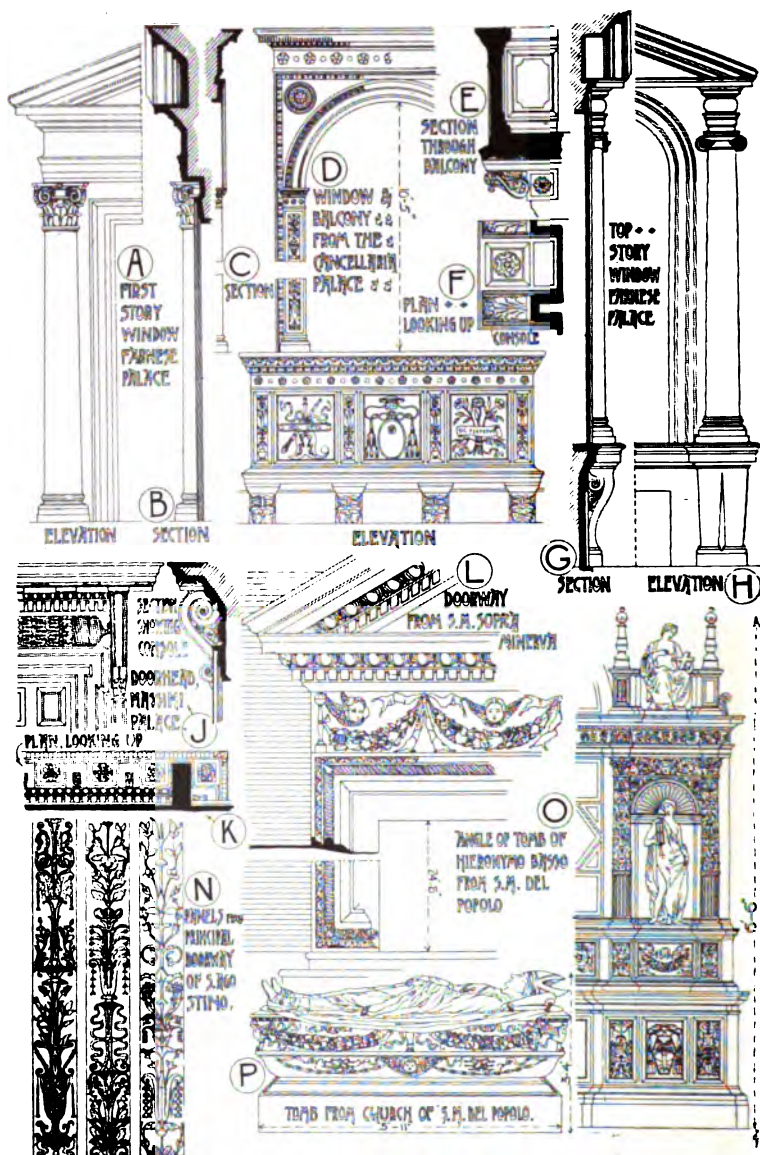
The portico to north transept of **S. Giovanni in Laterano** (1586) is also by Fontana.

The **Façade** of S. Giovanni in Laterano, by Galilei (A.D. 1734). The **Portico** to S. Maria Maggiore, by Fuga (A.D. 1743). The **Palazzo Borghese** (A.D. 1590), the **Palazzo Barberini**, by Maderna, and the **Fountain of Trevi** (A.D. 1735).

Note.—Characteristic Roman ornament is shown in No. 206.

4. COMPARATIVE (see page 490).

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THE VENETIAN SCHOOL.

"Underneath day's azure eyes,
 Ocean's nursling, Venice lies,
 A peopled labyrinth of walls,
 Amphitrite's destined halls,
 Which her hoary sire now paves
 With his blue and beaming waves.
 Lo! the sun upsprings behind,
 Broad, red, radiant, half-reclined
 On the level, quivering line
 Of the water's crystalline;
 And before that dream of light,
 As within a furnace bright,
 Column, tower, and dome, and spire
 Shine like obelisks of fire,
 Panting with inconstant motion
 From the altar of dark ocean
 To the sapphire-tinted sky."—SHELLEY.

I. INFLUENCES (see page 437).

i. **Geographical.**—The greatness of Venice was founded on Oriental commerce, due to her important geographical position, and the effect of this commercial prosperity lasted well into Renaissance times (pages 232, 404). The history of the Venetian state was always influenced by the proximity of the sea, and the peculiar formation of the coast.

ii. **Geological.**—Venice has the appearance of a floating city founded in the sea, churches, palaces, and houses being set upon piles in a shallow lagoon, a structural formation having an important influence on its art.

iii. **Climate.**—This favours out-door life, the heat in summer being great, though tempered by sea breezes. Open top stories, called *belvederes*, exist in many houses. The northern position renders chimneys more prominent than in other Italian cities.

iv. **Religion.**—Venice continued to maintain a semi-independence of the Pope, due to her political necessities in those days of growing temporal power. Strong loyalty to the State even among the clergy was manifested during the attempted interdict of Paul V., the learned theologian Paolo Sarpi (1552–1623) being the adviser of the State during this crisis (1607). The tolerance of Venetian policy is shown by the erection of the Greek church, an interesting example of the local Renaissance.

v. **Social and Political.**—During the whole of the fifteenth century, Venice was engaged in conquering the surrounding towns, to which Venetian nobles were appointed governors.

The government of Venice was republican, and the rivalry of the leading families led to the erection of fine and lasting monuments, such as the palaces which line the Grand Canal; these however were not fortresses, as at Florence, but the residences of peaceable citizens and merchant princes.

vi. **Historical.**—In the middle of the fifteenth century (1453) Constantinople was taken by the Turks, and the supremacy of Venice in the East was undermined. By the discovery of the new route round the Cape to India by Diaz in 1486, its commerce was diverted to the Portuguese. During the sixteenth and seventeenth centuries the Venetians were at constant war with the Turks, and eventually in 1715 the whole of her possessions, except in North Italy, were taken from her. Yet “the arts which had meanwhile been silently developing shed a glorious sunset over the waning glory of the mighty republic.”

2. ARCHITECTURAL CHARACTER.

The Renaissance movement had a very different effect upon the architecture of Venice from that which it produced upon the architecture of Florence, owing to the previously existing circumstances of the two cities. The Venetians had a beautiful type of Gothic architecture of their own, and, being farther from Rome, were not so much under the influence of that city as was Florence. Therefore, between the periods of Gothic and fully-developed Renaissance, there was a period of transition, the earlier buildings

in the new style having Gothic in conjunction with Renaissance details. A notable instance is in the pointed arches of the Renaissance façade in the courtyard of the Doges' Palace (No. 210 F) (see below).

The architecture of Venice is, in general, of a lighter and more graceful kind than that of Florence, columns and pilasters being used freely in all designs. A special Venetian feature is the grouping of the windows near the centre, leaving comparatively solid boundaries to the façades (No. 207), which façades are comparatively flat, and have no great projections, in consequence of the houses being situated on the side of canals, and having a straight frontage with the water. The rustication of walls, as at Florence, is unusual, and a cornice usually marks each story (No. 208), in contrast with the great crowning Florentine cornices. Extreme depth was sometimes given to the frieze, in which windows were sometimes placed (No. 210 A, B).

The balconies (No. 209) are graceful and important features, and give light and shade to the façade, having the same effect as the recessing of portions of the structure.

The regularity of the disposition of a Venetian façade is described by Browning, who talks of the

"Window just with window mating,
Door on door exactly waiting."

In the later period perfection of details is characteristic of the Venetian Renaissance, as, for instance, in S. Mark's Library and the palaces by Sansovino (A.D. 1479-1570). In Longhena's works and other late examples, the detail became large and projected boldly, producing strong effects of light and shade, heavy rustication being used to contrast the basement with the upper part of the façade (No. 209).

3. EXAMPLES.

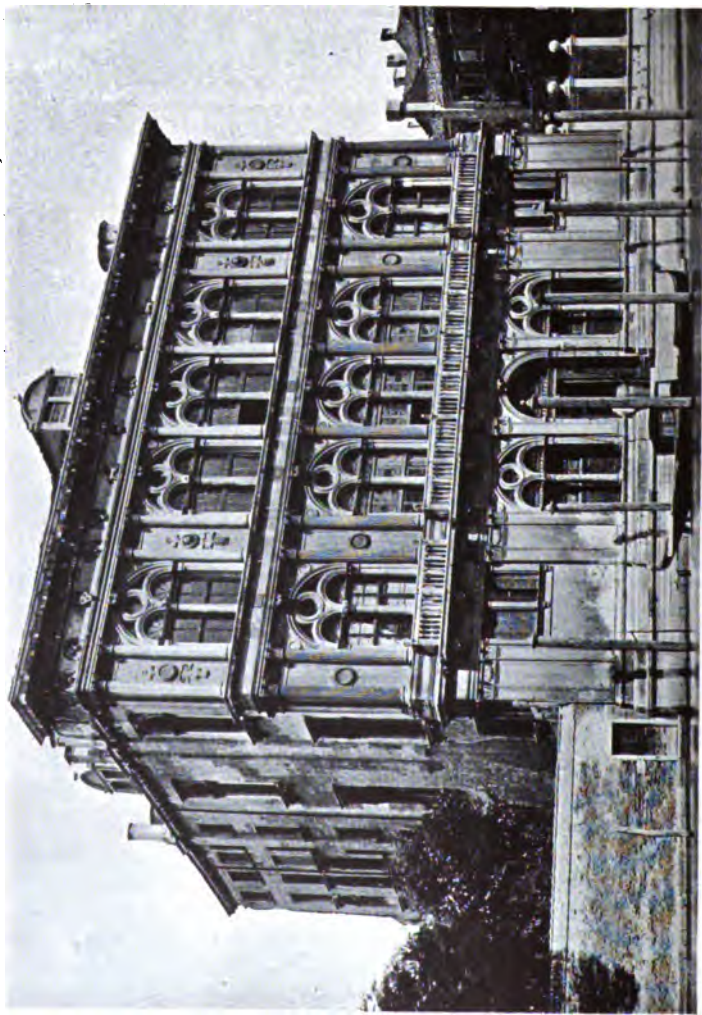
SECULAR ARCHITECTURE.

The **Court to the Doges' Palace** (No. 210) was commenced A.D. 1486, by Ant. Rizzi, the Giant's Staircase, giving access to the upper portions, being erected by Sansovino in A.D. 1554.

The façade of the Geological Museum in Piccadilly is founded on the design of the lower part of the courtyard façade of this palace.

The **Library of S. Mark** (A.D. 1536) was erected by Sansovino (No. 210), but the continuation of the design, one order higher round S. Mark's Square, was executed in 1584 by Scamozzi. This design has been followed for the Carlton Club, London.

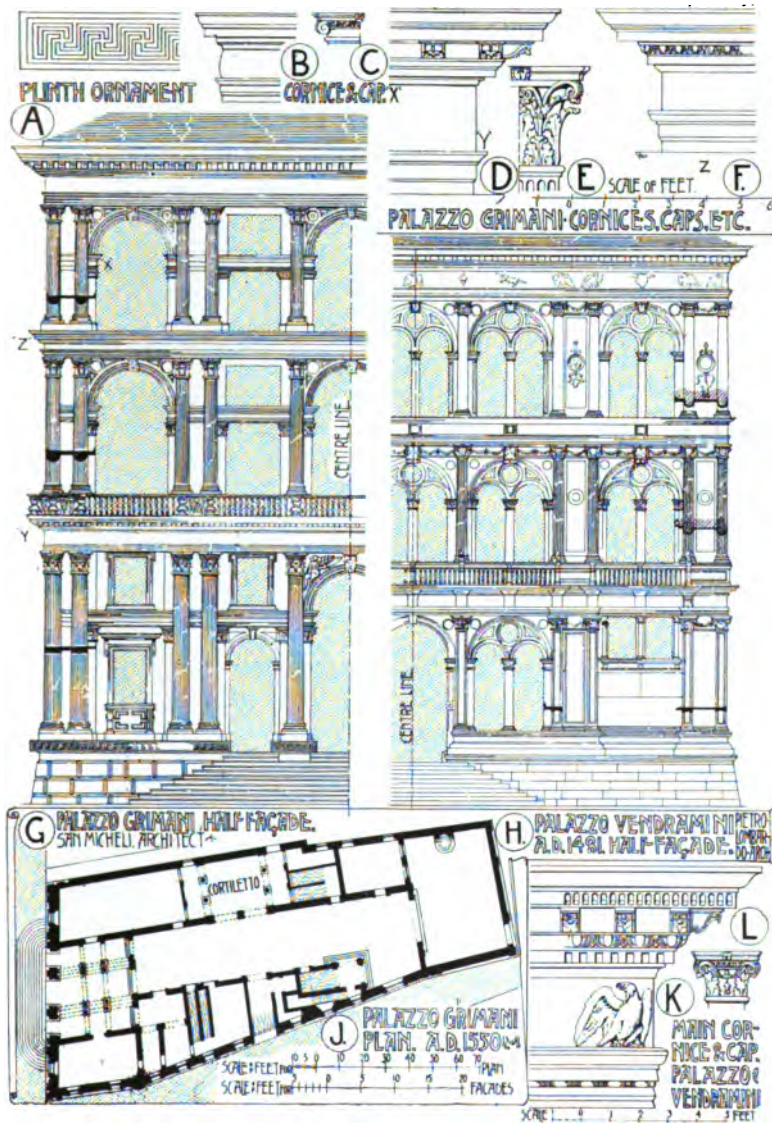
ITALIAN (VENETIAN) RENAISSANCE.



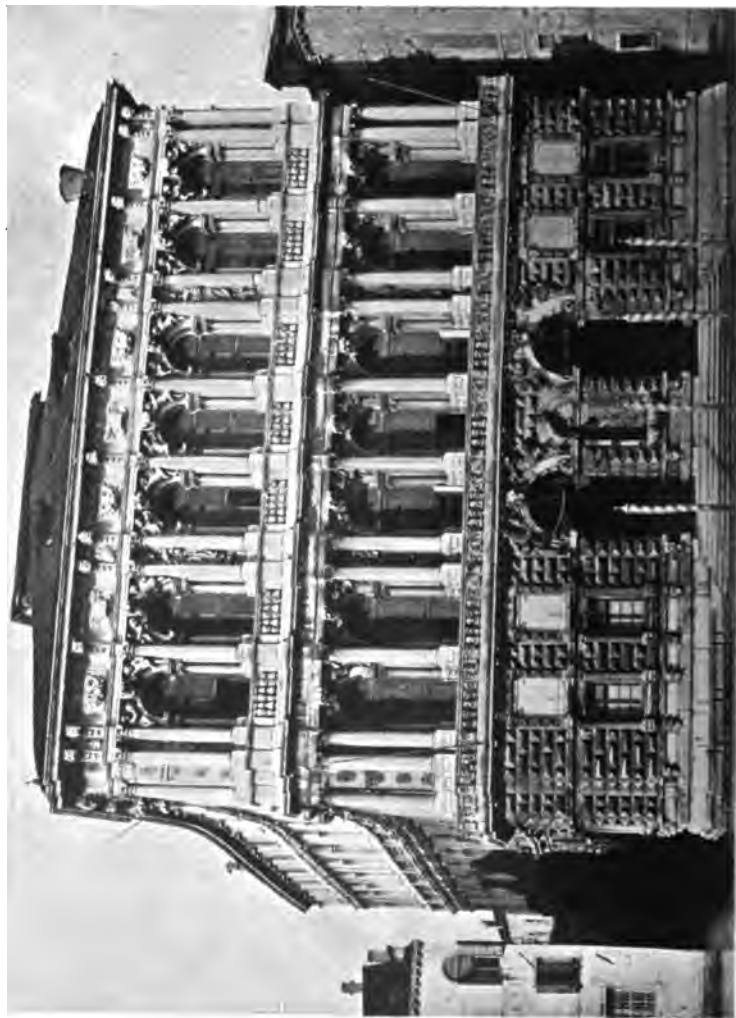
207.

PALAZZO VENDRAMINI, VENICE.

VENETIAN RENAISSANCE EXAMPLES. I.

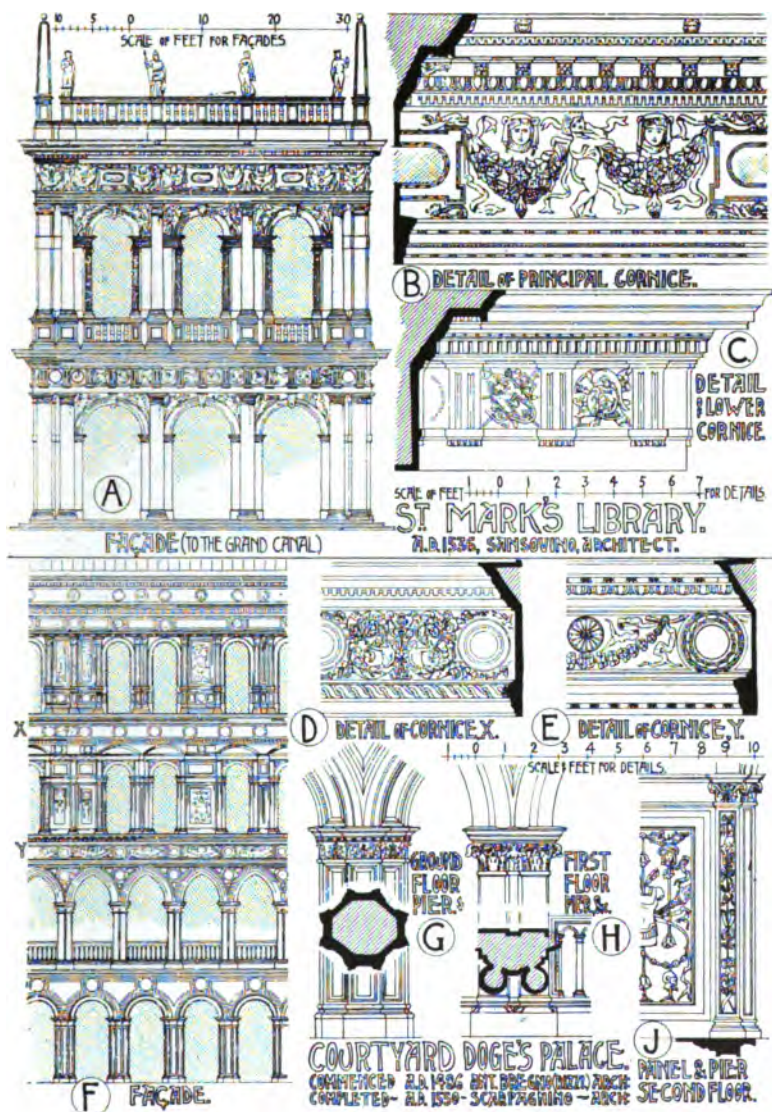


ITALIAN (VENETIAN) RENAISSANCE.



THE PESARO PALACE, VENICE.

VENETIAN RENAISSANCE EXAMPLES. II.

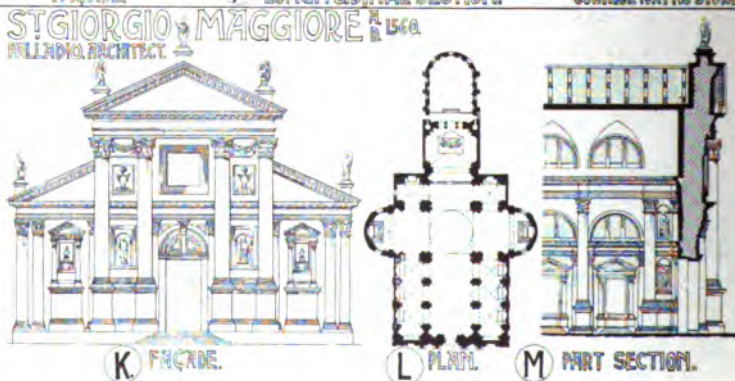
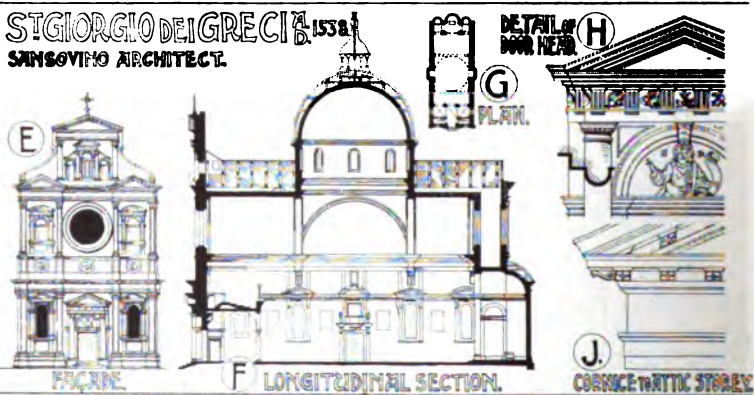
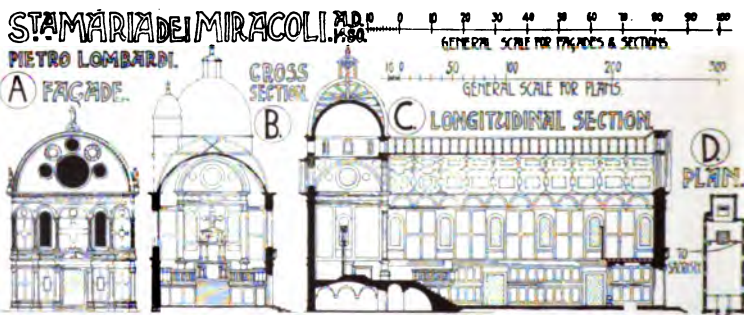


210.

F.A.

11

VENETIAN RENAISSANCE EXAMPLES. III.

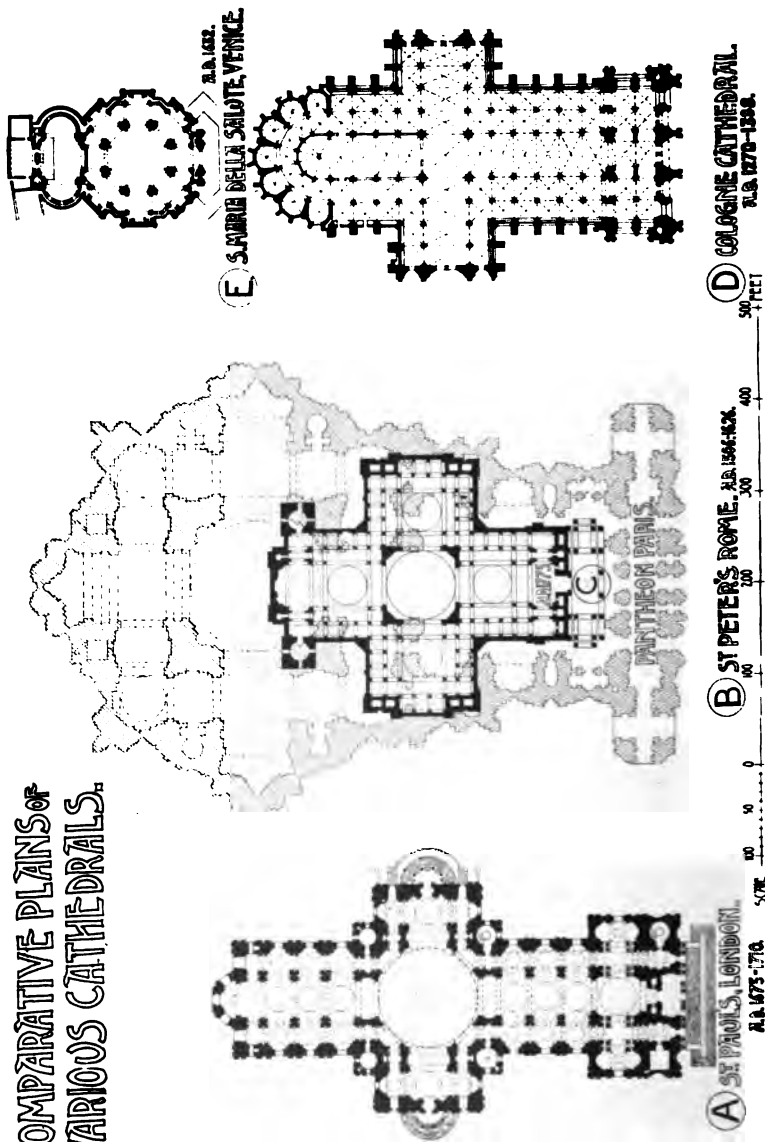


ITALIAN (VENETIAN) RENAISSANCE.



212. S. MARIA DELLA SALUTE, VENICE.

COMPARATIVE PLANS OF VARIOUS CATHEDRALS.



The **Zecca, or Mint**, was erected by Sansovino, 1536, and has a peculiar treatment of column rustication.

The **Vendramini Palace** (A.D. 1481), by Pietro Lombardo (Nos. 207 and 208), has to each story an order of engaged columns—the earliest example in Venice. The windows are semicircular, with a Renaissance treatment of tracery.

The **Cornaro Palace** (the Army and Navy Club, London, being a modified copy), by Sansovino (A.D. 1532); the **Grimani Palace**, by Sanmicheli (A.D. 1549); and the **Pesaro Palace** (A.D. 1650–1680), by Longhena (No. 209), are later examples.

The **Scuola di S. Marco** (A.D. 1485–1533), the façade of which was by Pietro Lombardo, is a rich example, held to be founded on the façade of S. Mark, and has curious sculptured reliefs in perspective.

ECCLESIASTICAL ARCHITECTURE.

S. Maria dei Miracoli (A.D. 1480) (No. 211), by Pietro Lombardo, architect, has no aisles, and the choir is raised twelve steps above the nave, which is covered with a roof of semicircular form, not uncommon in Venice. This is emphasized by a semicircular pediment on the façade, a feature which also occurs at S. Zaccaria. The walls are faced internally and externally, with delicately carved and different colored marbles. The sacristy is beneath the raised choir, as shown in No. 211 c.

S. Zaccaria (A.D. 1456–1515), a transition example, and **S. Giobbe** (A.D. 1451–1493), are other churches worthy of note.

S. Salvatore (A.D. 1530), by Tullio Lombardo, the plan derived from S. Mark, with domical and barrel-vaulted bays, and **S. Giorgio dei Greci** (A.D. 1538), by Sansovino (No. 211), are other examples of the early or transition period.

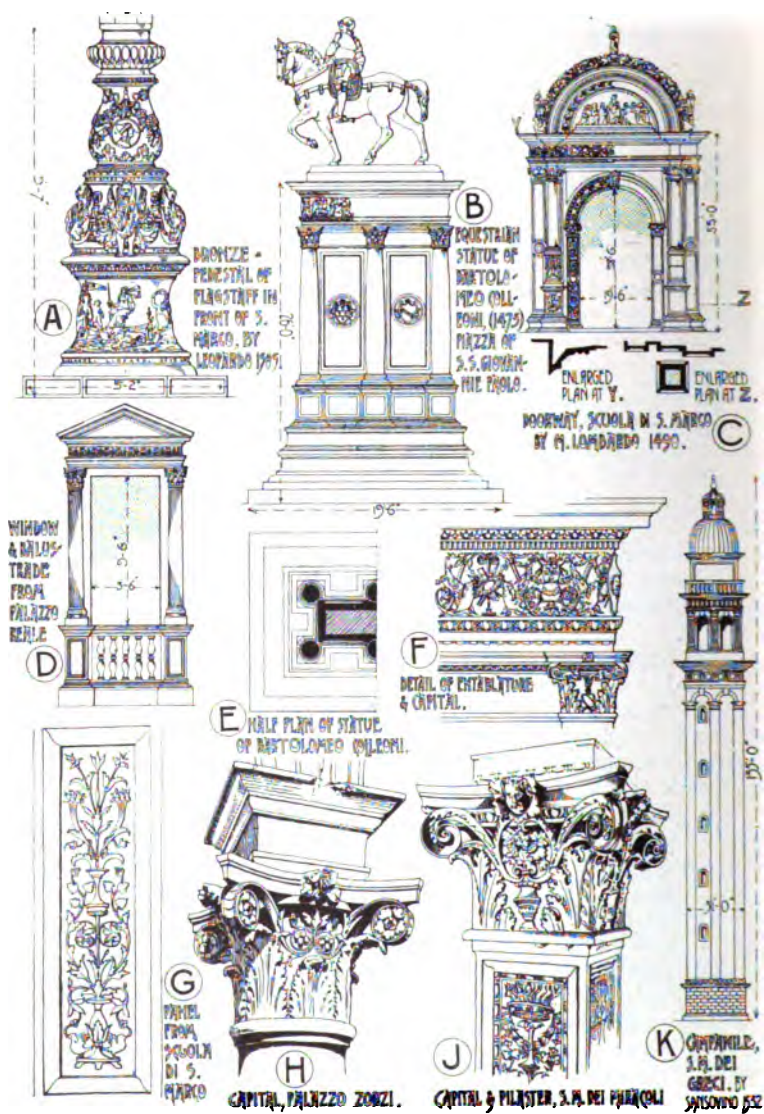
S. Francesco della Vigna, by Sansovino (A.D. 1534–1562), has a façade (1562) by Palladio resembling S. Giorgio Maggiore.

Il Redentore (A.D. 1576) and **S. Giorgio Maggiore** (A.D. 1560) were both by Palladio (No. 211), although the façade of the latter was by Scamozzi (A.D. 1575). These churches are instructive, as exhibiting the difficulties of adopting the Classic orders to the façades of churches of the basilican plan.

S. Maria della Salute (A.D. 1632), by Longhena (Nos. 212 and 213 E), groups most beautifully with the surroundings on the Grand Canal. In plan it consists of an octagon with chapels projecting on each side, the central space being covered by a circular dome, whose drum is connected to the outer walls by buttresses (No. 212) over the aisles, their fanciful shapes contributing to the rich effect. A secondary dome covers the chancel, which projects on the side opposite the entrance, and a small tower also carried up, contributes to the picturesque grouping of the exterior.

Note.—Characteristic Venetian ornament is shown in No. 214.

VENETIAN RENAISSANCE ORNAMENT.



ITALIAN (VENETIAN) RENAISSANCE.



215 THE BASILICA AT VICENZA, BY PALLADIO.

VICENZA AND VERONA.

These are notable cities possessing many examples of Renaissance architecture, and are counted in the Venetian School.

Vicenza was the birthplace of Palladio (A.D. 1518-1580) and the scene of his labours. His churches are referred to above. He indefatigably studied, and measured, all the Roman antiquities, as may be seen by the drawings in his book on architecture. His designs were mostly erected in brick and stucco, the lower story being rusticated, and the upper ones having pilasters. A second method was to comprise two floors in the height of the order (No. 216 G), to obtain scale in that feature, and unity and dignity in the whole composition. There are several examples in Vicenza of both of these methods, as the *Palazzo Barbarano* (A.D. 1570) (No. 216 H), the *Palazzo Chiericati* (A.D. 1560), the *Palazzo Tiepolo* (A.D. 1556), the *Palazzo Capitanio* (formerly Prefetizio) (No. 216 G), and the *Palazzo Valmarana* (A.D. 1556).

The *Teatro Olimpico* (A.D. 1580), with the stage built in perspective, is an interesting building completed by Scamozzi.

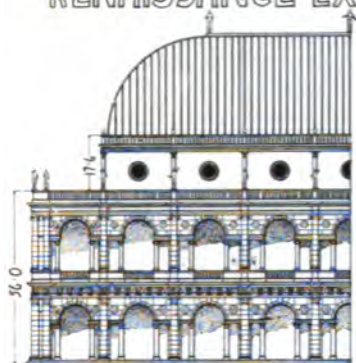
The *Basilica at Vicenza*, originally erected in the mediæval period (about 1444), owes its importance to the double-storied Renaissance arcades. These arcades (Nos. 215 and 216 A, B, C) were designed by Palladio in 1549, and are his most famous work, being built in a beautiful stone in two stories of Doric and Ionic orders, separated by arches supported on a minor order. This is generally known as the Palladian "*motif*," and was produced in this case by the necessity of making each bay correspond with the Gothic hall, of which it forms the frontispiece.

The *Villa del Capra, Vicenza* (generally known as the Rotonda), is an example of the application of the features of Classic architecture carried to an extreme (Nos. 216 D, E, F and 238 B). It is a square building, with a pillared portico on each face leading to a central rotunda, which appears externally as a low dome above the tiled roof, hipped all ways from the angles of the main building. The design of this building was utilized by Lord Burlington at Chiswick (page 581), and it has also been copied elsewhere, both in England and on the Continent.

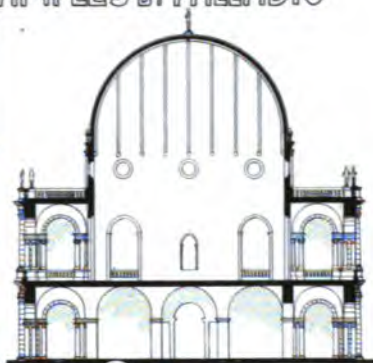
Although Palladio's designs were mainly executed in common materials such as brick and stucco, and were often never fully carried out, still their publication in books had a far-reaching influence on European architecture, and he was followed in his methods by Inigo Jones (page 567).

Verona owes many of its most important buildings to Sanmicheli (A.D. 1484-1549), an architect of ability, who was also the originator of a new system of fortification, and the entrance gateways through the fortifications of Verona are excellent instances of his power of giving character to his works,

RENAISSANCE EXAMPLES BY PALLADIO



A HALF ELEVATION



B SECTION



C GROUND PLAN



D HALF ELEVATION

E HALF SECTION

THE BASILICA AT VICENZA

THE COLONNADES SURROUNDING THE MEDIEVAL TOWNHALL WERE ERECTED IN 1549 AND FORM PALLADIO'S BEST KNOWN WORK. THE SETTING OUT OF THE BAYS IS DETERMINED BY THE WIDTH OF THE OPENINGS OF THE GOTHIC HALL. AT THE ANGLES WHERE HE WAS UNRESTRICTED PALLADIO HAS NARROWED THE ARCADE THEREBY GIVING GREATER STRENGTH WHERE REQUIRED

VILLA CAPRA, VICENZA

— GENERALLY KNOWN AS THE ROTUNDA — IS AN EXAMPLE OF THE APPLICATION OF THE FEATURES OF CLASSICAL ARCHITECTURE TO A COUNTRY VILLA



F PLAN



G

PALAZZO DEL CAPITANO 1571

PLAN OF FRONT WALL

SCALE FOR ELEVATIONS

10 20 30 40 50 60 70 80 90 100 FEET



H

PALAZZO PORTO BARBARANO 1570

PLAN OF FRONT WALL

SCALE FOR PLANS

10 20 30 40 50 60 70 80 90 100 FEET

by a bold and original treatment, in which he gave great extension to the use of rustication as a means of effect.

The *Palazzi Pompeii* (A.D. 1550) (No. 217 A), *Bevilacqua*, and *Canossa*, are the best known examples of his style at Verona.

The *Palazzo del Consiglio* (A.D. 1500) at Verona was erected by Fra Giocondo, and is chiefly remarkable for the colored "sgraffito work" of the façade.

Note.—Characteristic ornament is shown in No. 218.

4. COMPARATIVE.

THE FLORENTINE, ROMAN, AND VENETIAN SCHOOLS.

A. Plans.

Florence.—The utmost simplicity and compactness, a style of planning adapted to town, rather than country buildings. Staircases inclosed by walls (Nos. 191, 193) were vaulted by ascending barrel-vaults. In church work, the Roman coffered and vaulted nave (No. 193 E), the Byzantine domical treatment (No. 193 A), and the Basilican (No. 193 J), were all followed.

Rome.—More varied planning on a grander scale (Nos. 196, 198 and 199). Staircases, circular and elliptical, with columnar supports, are features, as those in the Barberini, Corsini, and Braschi palaces and the Scala Regia of the Vatican. In church work, the dome over a circular space (Roman type) (No. 199 C), and the dome on pendentives (No. 199 G), were used.

Venice.—Where an open site permitted, a broken, complex, and picturesque disposition was adopted; otherwise a straight front to the canals had to be adhered to (No. 208). Staircases, placed in a central area, surrounded with arcades, belong to this school. In church work, the Roman barrel-vaulted type (No. 211 D), the dome on pendentives and Basilican plan (No. 211), were used.

B. Walls.

Florence.—The style of fenestration and rusticated quoins (Nos. 191 and 192). The astylar treatment, which dispenses with orders and makes each story complete in itself, while subordinated as a whole by the great top cornice (No. 191) was adopted. In pure wall treatment it is akin to Egyptian art.

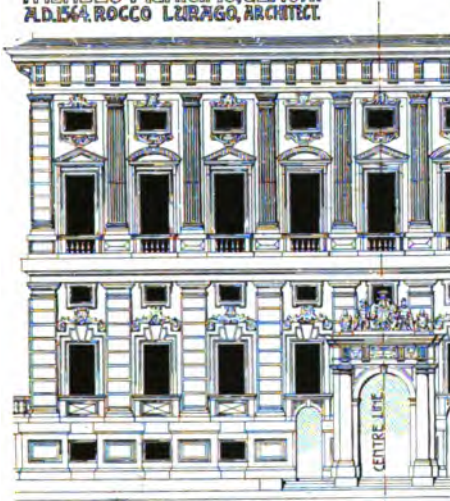
Rome.—The style of pilasters (No. 195). Two or more stories are united by an order upon a grand scale (No. 200). Windows are disturbing elements, without which the designs would have the unity of Greek temples.

Venice.—The style of columns (Nos. 207 and 209). Stories are defined by an order to each. Excessive separation by the entablatures is modified, and corrected by breaking them round the columns. In the multiplicity of parts the style allies itself to the Roman, as in the Colosseum.

RENAISSANCE EXAMPLES IN GENOA & VERONA.

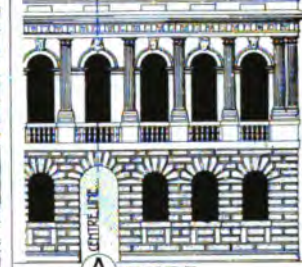
SCALE OF FEET FOR FACADES. SCALE OF FEET FOR SECTIONS.

PALAZZO MUNICIPALE, GENOA.
A.D. 1564. ROCCO LIZIRAGO, ARCHITECT.



(B) FACADE.

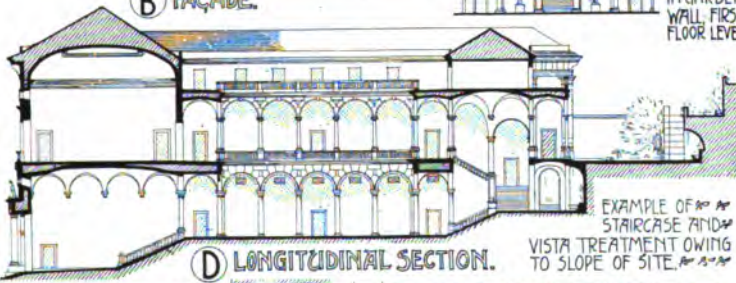
PALAZZO POMPEI, VERONA.
A.D. 1530. SAMPICCHIELE, ARCHITECT.



(A) FACADE.

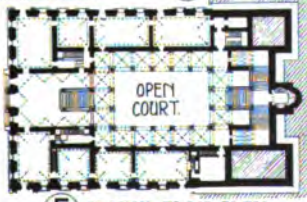


(C) CROSS SECTION.
SHOWING THE
GRAND STAIRCASE
& FOUNTAIN
IN GARDEN
WALL, FIRST
FLOOR LEVEL.

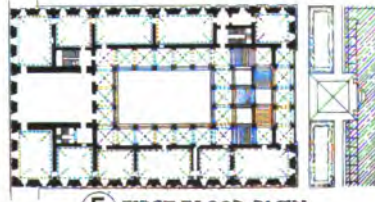


(D) LONGITUDINAL SECTION.

EXAMPLE OF THE
STAIRCASE AND
VISTA TREATMENT OWING
TO SLOPE OF SITE.

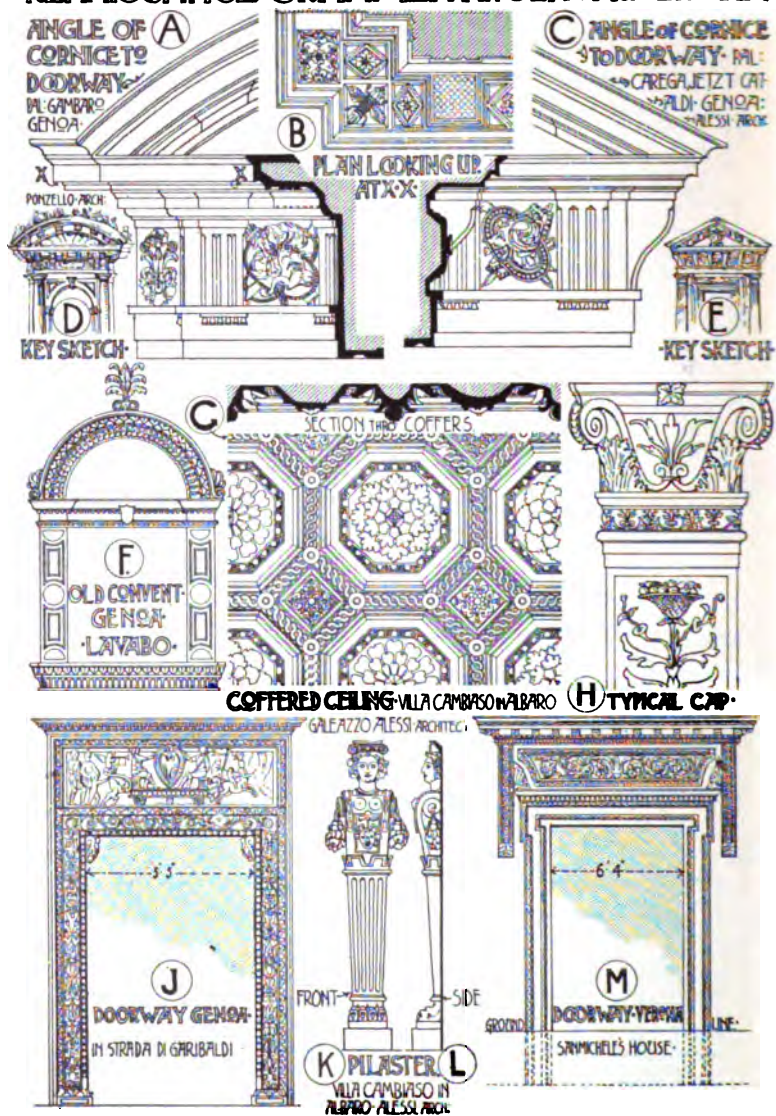


(F) GROUND FLOOR PLAN.



(E) FIRST FLOOR PLAN.

RENAISSANCE ORNAMENT IN GENOA & VERONA



c. Openings.

Florence.—Openings are small, wide-spaced, and severe in treatment (No. 191). The typical opening is an archway in rusticated work, divided by a column carrying two minor arches, forming a semi-tracery head (No. 194 D). In courtyards, arches resting directly on columns are typical (No. 191).

Rome.—Openings seem small in relation to the great order adopted (No. 195). A square-headed opening was treated with a framework of architrave mouldings (No. 196), and later on with orders on a small scale, surmounted by pediments (No. 197).

Venice.—Openings are large, numerous, and close set; the arcade and colonnade, as in the Colosseum, were adapted to palace façades. The treatment of a centre and two wings, obtained by window spacing, was continued from previous periods (Nos. 207 and 209).

D. Roofs.

Florence.—Flat pitch tiled roofs are sometimes visible (No. 192). Raking vaults to staircases, and simple cross or waggon-vaults in halls, generally frescoed.

In churches, the low dome over the crossing was a favourite feature (No. 193).

Rome.—Roofs rarely visible (No. 197).

Vaults of a similar kind were more elaborated, treated with coffering or stucco modelling (No. 198 H), after the style of the then newly-discovered Baths of Titus. Domes mounted upon a high drum and crowned with a lantern are universal in churches (No. 199).

Venice.—Roofs having balustrades preferred (No. 210 A). Pictorial effect was attempted in the vaulting of halls and staircases. Domes are grouped with towers in churches (Nos. 211 and 212).

In Milan and other North Italian cities, the low internal cupola was often covered externally by a lofty structure in diminishing stages, as at the Certosa, Pavia, and S. Maria della Grazie, Milan.

E. Columns.

Florence.—Early examples do not have the orders (No. 192), though columns were used to arcades, the arches springing direct from the capitals (No. 191).

Rome.—The application of the orders on a great scale is the "*motif*" of the style. In their use, the scale of openings, and the internal necessities of the building, were not regarded, and even such features as balustrades were not regulated by use, but by the system of proportion to the order employed (Nos. 195, 197 and 200).

Venice.—The problem of successive tiers of orders was worked out (Nos. 207, 208 and 209); projecting columns were preferred to pilasters, and entablatures were usually broken round these projections.

F. Mouldings.

Florence.—Moulding are few and simple. Those between stories were reduced to the minimum, to give full effect to the grand crowning cornice, the details of which were based on Classic examples (Nos. 191 and 194).

Rome.—Close adaptation of the features of the Classic orders marks the Roman style (Nos. 198 and 206), until Michael Angelo, and his followers, despising the sound methods of the earlier architects, introduced their arbitrary details.

Venice.—Prominence of detail is characteristic of the late Renaissance works in Venice; entablatures have deep soffits and keystones, and great projection, while spandrels have figures in high relief (Nos. 208, 210 and 214).

G. Ornament.

The revival of fresco painting and its application to buildings by the artists of the great schools of Italian painting had an important decorative effect on all the schools.

Sculptured ornament to friezes carved with infant genii, scrolls, fruit and masks, was abundantly used in the three schools.

Florence (No. 194).—Decoration, such as carving and sculpture, is collected in masses, which contrast with the plain wall surfaces, as in the great stone shields at the angles of palaces (No. 192).

Rome (No. 206).—Stands midway between Florentine and Venetian work, having more variety than prevails in the sternness of the former, and less exuberance than is found in the latter.

Venice (No. 214).—Decoration is equally spread throughout the façade. Every spandrel has its figure, and the high relief of sculpture competes with the architectural detail in prominence (No. 209).

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MILAN AND GENOA.

Although these cities formed no distinct school, as Florence, Rome, and Venice, there were many noteworthy buildings which may be briefly referred to.

Milan was, as it is now, one of the richest and most populous of Italian towns. The powerful family of the Visconti, who in former times had built Milan Cathedral (page 408), greatly encouraged art. Brick and terra-cotta were the materials chiefly to hand, and were employed in the Church of *S. Maria della Grazie* (A.D. 1492) (page 457), by Bramante, and in the great courtyard of the *Ospedale Maggiore* (A.D. 1457), by Filarete, a Florentine. Both these buildings possess a considerable amount of Gothic feeling; the detail is delicately and richly modelled, and is very suitable to the material employed.

S. Satiro, Milan (A.D. 1474), by Bramante, is famous for its chancel wall, treated in perspective, and for its octagonal sacristy.

The *Certosa, Pavia*, near Milan (page 408), which was erected in the Gothic period (A.D. 1396), has the west façade (A.D. 1476), by Borgognone, in the Renaissance style, and is probably the most important of the early examples. It is in marble, and is specially remarkable for the small scale of its parts, the leading lines being essentially Lombardian Gothic, although clothed with Renaissance details. The dome is interesting as a Renaissance copy of a type used in the Gothic period as at Chiaravalle and elsewhere. The arcaded galleries, the niches with statues executed by the greatest sculptors of the day, and the wealth of beautifully executed detail, make it one of the richest and most perfect specimens of the arts of the architect and sculptor.

Genoa has some remarkable buildings, principally designed by Alessi (A.D. 1500-1572), a pupil of Michael Angelo. The building material at hand was brick, which was covered with stucco, to resemble stone-work.

The Genoese palaces are remarkable especially for the entrance courts, the arrangement of the vestibules, courtyards, and flights of steps, in which advantage was taken of the sloping sites to produce beautiful vistas of terraces and hanging gardens (No. 217 D). These buildings usually have their basements rusticated, and pilasters were freely introduced as a decorative feature; while the façades were crowned by a bold projecting cornice, supported by large consoles (No. 217 B), the windows occupying the square intervals between these brackets. Many of the palaces were painted wholly in one color, and received their name from it, as the Palazzo Bianco (white), Palazzo Rosso (red), and the bright coloring, with the help of the Italian sun, gives them a very bright appearance. The *Palazzo Municipio* (Doria-

Tursi) (A.D. 1564) (No. 217) and the *Palazzi Durazzo, Balbi, and Cambiassi* are the best known. *S. Maria di Carignano* (A.D. 1552), also by Alessi, was designed on the lines of Raphael's plan of *S. Peter, Rome*.

Note.—Characteristic ornament is shown in No. 218.

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Rubens (P. P.).—"Palazzi antichi et moderni di Genova." 1663.

THE ROCOCO STYLE.

The **Rococo**, or **Baroco**, style is a debased application to architecture of Renaissance features, which was followed in the seventeenth century. Such work is to be distinguished from the mixtures of certain forms of the early Renaissance, when the style was commencing, because the Rococo period, coming after the reign of a highly systematized classical style, represents an anarchical reaction. Sinuous frontages, broken curves in plan and elevation, and a strained originality in detail, are the characteristics of the period. Columns were placed in front of pilasters, and cornices made to break round them, and broken and curved pediments, huge scrolls, and twisted columns are also features of the style. In the interiors, the ornamentation was carried out to an extraordinary degree, without regard to fitness or suitability, and consisted of exaggerated and badly-designed detail, often over-emphasized by gilding and sculptured figures in contorted attitudes. This style, commencing at the time when the movement in religion connected with the Jesuits was in progress, was adopted by them for its essentially modern character, and the features described are specially to be seen in the Jesuit churches throughout Italy and the rest of Europe, its almost universal extension being a monument to their activity. The application of classical ideas to modern forms, beneath the trappings of bad detail, can be traced in the later period of the Renaissance movement.

Carlo Maderna (1556-1639), *Bernini* (1589-1680), and *Borromini* (1599-1667), were among the more famous who practised this debased form of art, and among the most prominent examples are the Roman churches of *S. Maria della Vittoria* by Maderna, *S. Agnese* by Borromini, and many churches at Naples and elsewhere.

A

FRENCH RENAISSANCE.

(See page 246 for French Romanesque.)

(See page 362 for French Gothic.)

"In all new work that would look forth
To more than antiquarian worth,
Palladio's pediments and bases,
Or something such, will find their places."—CLOUGH.

I. INFLUENCES (see page 437)

i. **Geographical.**—Refer to pages 246, 362. France had now more clearly defined boundaries, which hereafter, in spite of the conquests of Louis XIV. and Napoleon, were not permanently extended.

ii. **Geological.**—Refer to pages 246 and 362. Paris is built, so to speak, in a quarry of a fine-grained building stone, and is a stone city, as London is a brick city.

iii. **Climate.**—Refer to page 246.

iv. **Religion.**—The Reformation maintained practically no hold in France, the old order remaining until the end of the eighteenth century. As, moreover, the supply of churches erected during the mediæval period proved adequate, it was the domestic work which took the lead in this period. Thus the Louis XIV. style, which had an universal influence upon interiors, and furniture, had little effect upon churches, the Jesuit style (page 496) prevailing in those built during this period.

v. **Social and Political.**—Paris at this time was the capital of a compact and rapidly consolidating kingdom, and from Paris emanated any movement, not only in architecture, but also in science and literature. The number of *châteaux* erected during the early periods of the Renaissance in France was due to many social causes. The invasion of Italy by Charles VIII. in 1494, and by Francis I. in 1527, in vindication of their claims to the thrones of Naples and Milan, marks the distribution of Italian artists and workmen over Europe, and more especially France, many returning in the train of the French kings. Among the chief of the artists were Leonardo da Vinci, brought to France by Francis I.; Cellini, Serlio, Vignola, Rosso, Primaticcio, and Cortona. In the later period, the Italian Bernini was

the guest of Louis XIV. A band of Italians journeying from place to place was responsible for much of the picturesque early Renaissance south of the Loire.

vi. Historical.—The English were driven from France in 1543, and the accession of Louis XI. in A.D. 1461 practically led to the consolidation of France into one kingdom by the reconciliation of the Duke of Burgundy. During the first half of the sixteenth century Italy became the battlefield of Europe. In 1494 Charles VIII. of France, claiming the kingdom of Naples, marched through Italy, and in 1508 Louis joined the league of Cambray formed against Venice, Florence being the ally of France during all this period. Francis I. was defeated and taken prisoner by the Spaniards at the Battle of Pavia, 1525. In these wars the French kings, although failing in their actual object, were thus brought into contact with the superior civilization of Italy, and drawn into the Renaissance movement, at the same time becoming more absolute in their own country. From 1558 to the end of the century, the religious wars, between the Huguenots and Catholics, distracted the country. The Massacre of S. Bartholomew took place at Paris, 1572, after which there was an emigration of Huguenots to England. During the reign of Louis XIII. (1610–1643) Cardinal Richelieu strengthened the royal power. Cardinal Mazarin continued his policy, and Louis XIV., ascending the throne in 1643, became an absolute monarch. His conquests, in the Netherlands and Germany, led to a general coalition against him, and to his great defeat at the hands of Marlborough. The Revocation of the Edict of Nantes in 1685 led to a further emigration of Protestants to England. In the reign of Louis XV. (1715–1774) the evil effects of despotism and bad government became more marked, and the writers Voltaire, Rousseau, and others weakened authority by their attacks, and prepared the ground for the great revolution that began in 1792.

2. ARCHITECTURAL CHARACTER.

Refer to pages 439, 442.

The style may be divided into three periods:—

(a.) The *Early Renaissance Period*, 1461–1589 (or sixteenth century), comprising the reigns of:—Louis XI. 1461–1483, Charles VIII. 1483–1498, Louis XII. 1498–1515, Francis I. 1515–1547, Henri II. 1547–1559, Francis II. 1559–1560, Charles IX. 1560–1574, and Henri III. 1574–1589.

(b.) The *Classical Period*, 1589–1715 (or seventeenth century), comprising the reigns of:—Henri IV. 1589–1610 (introduced classic type), Louis XIII. 1610–1643. and Louis XIV. 1643–1715.

The latter reign was a period of remarkable artistic activity, the architecture being correct and dignified with a large use of the orders externally, while internally a fanciful style of stucco and papier maché decoration of scrolls, nymphs, wreaths, shells and figures form important elements.

(c.) The *Rococo Period*, 1715-1793 (or eighteenth century), comprising the reigns of:—Louis XV. 1715-1774, and Louis XVI. 1774-1793.

In order to understand better the architectural character of French Renaissance it is compared with Italian in the following table:—

ITALIAN RENAISSANCE.

A direct return to Classic forms occurred. Considerable variety however arose in use and disposition of the revived architectural features (No. 204).

Principal buildings erected in towns, as Florence, Rome, and Venice, being palaces for kings, dukes and wealthy and powerful popes (Nos. 192, 195 and 207).

Severe Classic disposition not only appropriate but necessary in the narrow streets of Florence and Rome, or on the straight waterways of Venice.

Influence of ancient Rome and her buildings apparent in greater purity of sculptured detail, and in ornamental features.

A city palace as in Florence, Venice, or Rome is principally seen from the street, and the architectural features were often *appliqué*, i.e., only applied to the front façade (No. 207).

Predominant characteristics are stateliness and a tendency to Classical horizontality.

Early buildings were principally churches, in consequence of the comparative fewness of these buildings erected in the Middle Ages. It was essentially a church-building age (Nos. 193, 199, 203, 211, 212), although the number of Italian palaces of the epoch is very large.

FRENCH RENAISSANCE.

A period of transition in which Renaissance details were grafted on to Gothic forms, as at the Church of S. Eustache (No. 222), Paris, Château de Blois (No. 219).

Principal buildings erected in the country, mostly on the banks of the Loire, being palaces built for royalty and nobility, as Chambord (No. 220).

The picturesque disposition of Gothic origin, more in keeping with the country surroundings, where the chief buildings were erected (No. 221).

Influence of Rome less apparent, partly because of distance from the headquarters of the Renaissance movement.

A country *château* is seen on all sides, and the importance of a picturesque grouping from every point of view (Nos. 220, 221) was sought for in these buildings, so that every façade was of importance.

Predominant characteristics are picturesqueness, and a tendency to Gothic verticality (No. 222).

Early buildings were principally *châteaux* for the nobility, who vied with each other in the erection of these important structures. The large number of the churches of the Middle Ages sufficed for existing needs. It was essentially a palace-building epoch (Nos. 220, 221 and 223).

ITALIAN RENAISSANCE.

The country houses of the nobles in the Venetian territory, in the style of Palladio, are symmetrical and stately, with no traces of Gothic influence (No. 216 D, E, F).

FRENCH RENAISSANCE.

The *châteaux* on the Loire are irregular Gothic castles, with a coating of Renaissance detail (Nos. 220 and 221) over features essentially Gothic.

3. EXAMPLES.

SECULAR ARCHITECTURE.

The **Château de Blois** (A.D. 1508), erected by Louis XII. and Francis I., is one of the more important examples (No. 219). The pilaster treatment of the façade, the mullioned windows showing the preference for the square section of mullion, and the rich crowning cornice and carved roof dormers, are notable. The shell ornament, introduced from Venice, was largely employed. In the famous "*Staircase Tower*" by Francis I. (A.D. 1515-1547), the letter F decoratively formed among the carved balusters, and vaulting bosses, and the repetition of the carving of the salamander, the emblem of Francis I., are interesting (No. 219). A Scottish version (minus the staircase) is to be seen in Fettes College, Edinburgh.

The **Château de Bury** (A.D. 1520) (No. 220 A, B), near Blois, is a typical example and may be compared with a typical English plan (Nos. 131 and 244).

It consists of a large square court, in front of which is a screen wall, solid externally, but with a colonnade facing the court. The entrance is in the centre of this wall, and is provided with a *porte-cochère*, or carriage entrance. The screen wall is flanked by towers, circular externally, and square internally, and attached to these, forming two sides of the court, are long wings containing the servants' apartments on one side, and offices and stabling on the other. These are connected at the further end of the court with the main building (*Corps de logis*) in which the family resided, and which contained the reception rooms. Behind this main building was the garden, and in the centre of one side was placed the chapel. Each of the side wings to the court is one story lower than the main building, which contained the family apartments, as mentioned above.

The above description applies equally to French town houses, up to the present day, with slight modifications dependent on site and local necessities. In French country houses the windows face on to an internal courtyard, as in the ancient Roman atrium (the courtyard corresponding to the atrium), whereas in English country houses *after the time of Henry VII.* the windows all face outwards, a courtyard being an exception (No. 131).

The **Château de Chambord** (A.D. 1526) (Nos. 220 C, D, and 221), by Pierre Nepveu, is one of the most famous erected in the

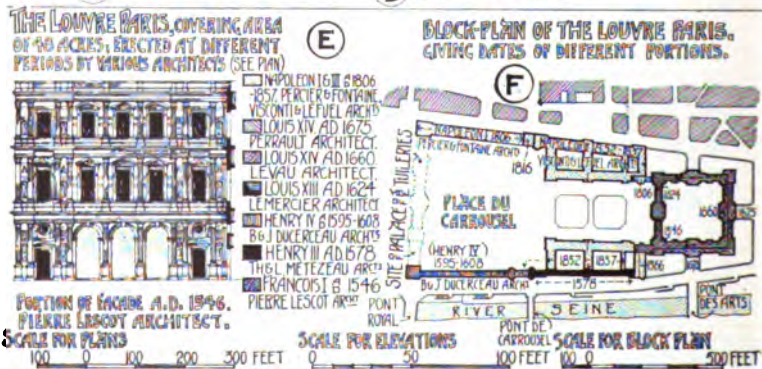
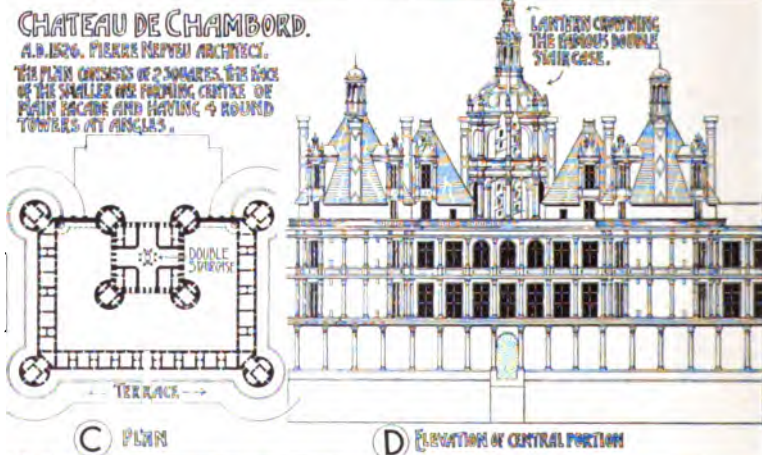
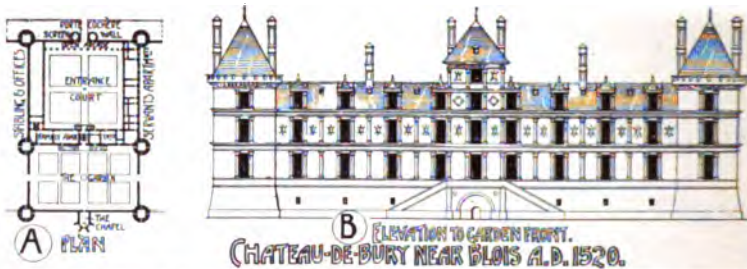
FRENCH RENAISSANCE.



219.

CHÂTEAU DE BLOIS.
The Staircase Tower.

FRENCH RENAISSANCE EXAMPLES. I.



Loire district of central France, and possesses a semi-fortified character. The traditional circular towers of defence, roofed with slate covered cones, are incorporated in a palace design infused with Italian detail. These conical roofs are broken up, where possible, by rich dormers (No. 225 K, L, M) and tall chimneys, which give to the building its characteristic confusion, yet richness, of sky-line. The main block, 220 feet square, corresponding to the keep of an English castle, was surrounded, and protected on three sides, by buildings inclosing a courtyard; while the fourth side was defended by a moat. The central feature, or "donjon," is square on plan, with four halls as lofty as the nave of a church, and tunnel-vaulted with coffered sinkings. At the junction of these halls is the famous double spiral staircase, built up in a cage of stone, whose crowning lantern is the central object of the external grouping. The smallness of scale in regard to mouldings, the flatness of the projection to the pilasters, the Gothic feeling throughout the design, especially the high-pitched roofs, the ornamented chimneys, and the general vertical treatment of the features, make this example one of the most characteristic of Early French Renaissance buildings. An English version is the Royal Holloway College, Egham. It may be compared with advantage to the pentagonal semi-fortress of Caprarola (No. 201), by Vignola (page 463).

The Palace at Fontainebleau (A.D. 1528) was erected by Le Breton, architect, for Francis I., whose favourite residence it was. There is a remarkable irregularity in its plan, due in part to the convent it replaced, and Vignola and Serlio seem to have worked on the design. Contrary to Blois, the chief interest of this example lies in the sumptuous interiors, as in the saloons decorated by Benvenuto, Cellini, Primaticcio and Serlio (No. 225). The exterior is remarkably plain.

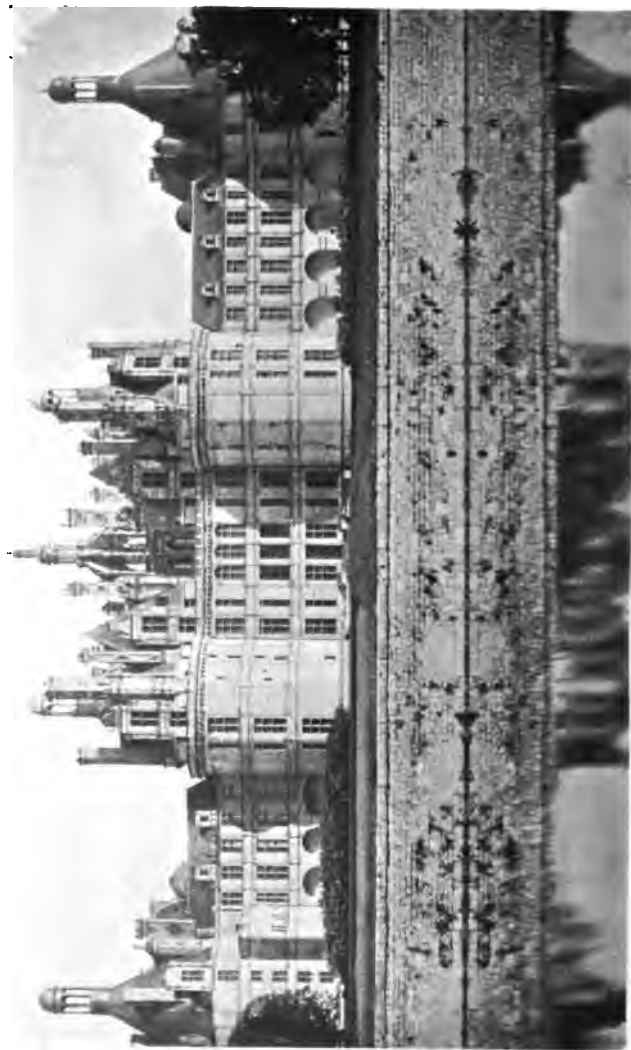
Other noteworthy examples are the **Château d'Azay-le-Rideau** (A.D. 1520); the **Château de Chenonceaux** (A.D. 1515-1523), picturesquely situated by a lake, and standing for the most part on a bridge over the water, and the **Château de S. Germain-en-Laye** (A.D. 1539).

The Louvre, Paris.—This may be taken as the most important building in the style, and its construction lasted from the time of Francis I. to Louis XIV., the building exhibiting, in consequence, a complete history of the progressive stages of the French Renaissance style, as shown on No. 220 F.

The general design of the Louvre was originally intended to cover the ground of the fortified Gothic palace which it replaced. The present design consists of two stories and an attic (No. 220 E), arranged round a courtyard, 400 feet square.

Pierre Lescot (A.D. 1515-1578), the first architect, commenced the work in 1540, under Italian influence, but the original design

FRENCH RENAISSANCE.



221.

CHÂTEAU DE CHAMBORD.

only included a court one-fourth the present size. The only courtyard in Italy to which that of the Louvre may be compared is the Great Hospital at Milan, commenced in 1456 by the architect Filarete. This was formed of open colonnades in two stories, due no doubt to climatic influences; whereas the Louvre is throughout of solid walling, broken up only by pilasters, windows, and other architectural features.

The lower order is of Corinthian, the upper of Composite pilasters, and an order of pilasters of less height was provided for the attic story.

The sculptured work by Jean Goujon (A.D. 1510-1572) is especially noteworthy.

Under Henri IV. (A.D. 1589-1610), the gallery facing the Seine was erected (1595-1608) by Du Cerceau, and shows the debased inclinations of the period, the details being coarsely carved throughout. Corinthian columns run through two stories, the entablature was pierced for admission of windows, and triangular or circular pediments were placed over pilasters, without any reference to construction or fitness.

Under Louis XIII. (A.D. 1610-1643) the Louvre, as built by Lescot, was doubled in size by the architect Lemerrier, the Pavillon de l'Horloge being added to form the centre of the enlarged court façade.

Under Louis XIV. Perrault added (1688) the eastern façade, 600 feet in length, consisting of a solid-looking basement, above which is an open colonnade of coupled Corinthian columns, and additional stories were added on the north and south sides of the court to make up the necessary height to the eastern block.

Under Napoleon I. the northern portion fronting on the Place du Carrousal (completed by Napoleon III. (1863-1868) and the Republic (1874-1878)) was constructed to connect this building with the Tuileries Palace.

Under Napoleon III. the Louvre was finished by Visconti, during 1852-1857, by the addition of the façades north and south of the Place Louis Napoleon, forming one of the most pleasing specimens of modern French art, in which a certain richness and dignity are added to the picturesqueness of the earlier periods.

The **Tuileries Palace, Paris** (A.D. 1564-1572) was commenced for Catherine de Médici, by Philibert de l'Orme (A.D. 1515-1570). Only a portion of one side was erected, consisting of a domical central pavilion with low wings on either side. In the reign of Henry IV. two stories were added by F. B. du Cerceau. The problem of effecting a proper junction between this palace and the Louvre was a crux of long standing because of the want of parallelism between them, but was finally effected under Napoleon III. as mentioned above. The destruction of the

Tuileries during the Commune in 1871, however, has rendered the connecting galleries architecturally ineffective.

The **Luxembourg Palace, Paris** (A.D. 1611) (No. 223 G, H), was erected by De Brosse for Marie de Médici of Florence, the intention being to imitate the bold and simple treatment of Florentine buildings. It resembles the Pitti Palace, Florence, in the treatment of the courtyard.

It has a French type of plan, *i.e.*, a "corp de logis," 315 feet by 170 feet and three stories in height, from which wings project 230 feet, enclosing a courtyard, and having screen and *porte-cochère* in front. It is now used as a Senate House.

The **Château de Maisons**, near Paris (1658), was erected by François Mansard, architect, and is shown in plan and elevation in No. 223 E, F. It is notable for the effective use of the Classic orders to each story, the mansard roofs treated separately for the pavilions and central portion, and general refinement of detail.

The **Palace of Versailles** was commenced in A.D. 1664, by Jules Hardouin Mansard (1647-1708), for Louis XIV., and is remarkable only for the uniformity and tameness of its design. The dimensions are very large, the central projection measuring 320 feet and each wing 500 feet, thus giving a total of 1,320 feet. Le Nôtre laid out the gardens which, with their fountains, terraces and arbours, are very fine.

In addition to the important buildings mentioned, there are many charming examples of the style, as the **House of Agnes Sorel, Orleans**, the **Hotel de Bourgtheroulde, Rouen**, the **Hotel de Ville, Beaugency**, and many others throughout France.

Amongst later examples in Paris are the **Arc de Triomphe** (A.D. 1806) by Chalgrin; the **Library of S. Geneviève**, with its astylar façade (A.D. 1843-1850), by Labrousté; the **Louvre**, completed by Visconti; the **Hotel de Ville**, reconstructed in its original style of the Early Renaissance (A.D. 1533) by Ballu and Deperthes in A.D. 1871; and the **Opera House** (A.D. 1863-1875) by Garnier.

ECCLESIASTICAL ARCHITECTURE.

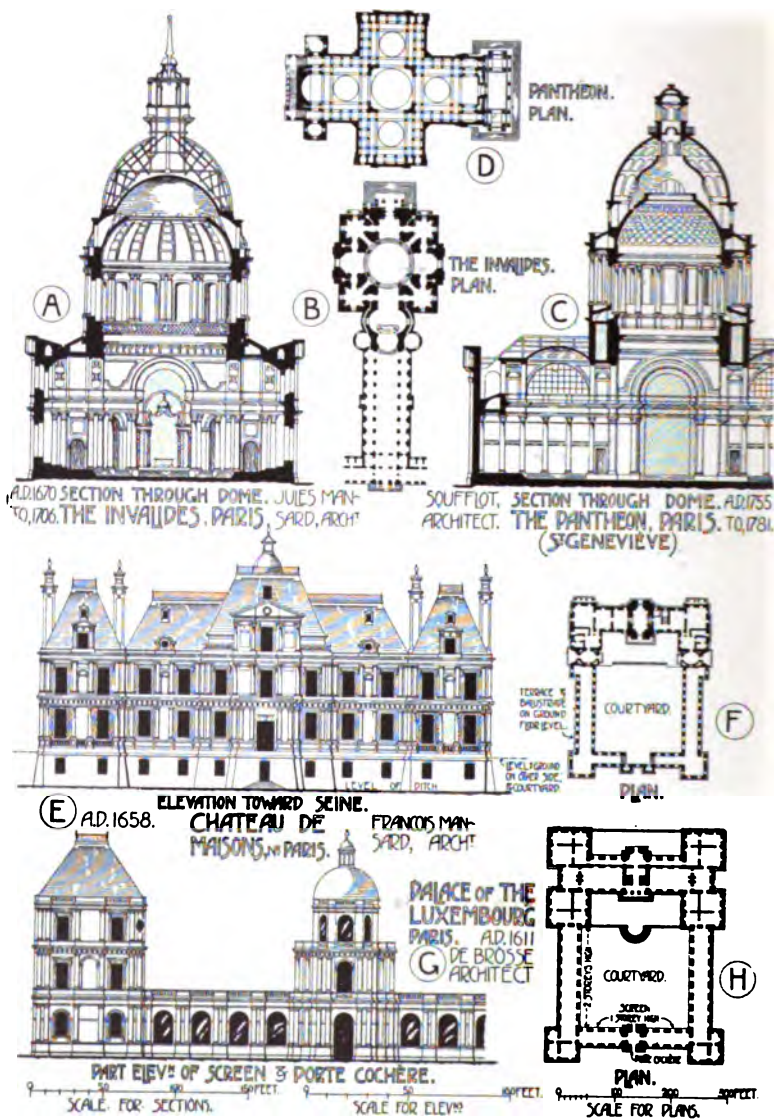
The early examples of the incoming style consisted mainly, as in England, of tombs, pulpits, altars and doorways, and additions to churches, in which Renaissance details were often grafted on to Gothic forms. The tombs of Louis XII. (A.D. 1515) in S. Denis Cathedral, near Paris, and Cardinal d'Amboise at Rouen; the portals of the church of the Trinity at Falaise; the external pulpit at the Château de Vitré, and the apses of S. Pierre at Caen, are examples.

FRENCH RENAISSANCE.



S. EUSTACHE, PARIS.

FRENCH RENAISSANCE EXAMPLES. II.



S. Eustache, Paris (A.D. 1532), by Lemer cier (No. 222), in plan is a typical five-aisled mediæval church, with circular apsidal end. As to the exterior, it has high roofs, a kind of Renaissance tracery to the windows, flying buttresses, pinnacles, deeply-recessed portals, and other Gothic features, clothed with Renaissance detail. The church is, in fact, laid out on Gothic lines, but clothed with detail inspired from Italian sources.

S. Etienne du Mont, Paris (A.D. 1517-1538) is another example to which the same remarks apply. It has a famous rood-screen, with double staircases and carved balustrading in Renaissance detail, illustrating the highly developed technical ability of the masons of the period.

The Church of the Sorbonne (A.D. 1629) was designed by Lemer cier and has a domical treatment with a façade of super-imposed orders.

S.S. Paul and Louis, Paris (A.D. 1627), is an unfortunate example of the intermediate period, overloaded with decoration to its three-storied façade.

Amongst the later examples are **S. Sulpice, Paris** (A.D. 1650) the grand two-storied façade being added by Servandoni in A.D. 1750.

The Dome of the Invalides, Paris (1670-1706), by Jules Hardouin Mansard, which completed the scheme of the Hôtel des Invalides, commenced in 1670 by Bruant, shows that the principles of the Italian Renaissance were fully established.

In plan it is a Greek cross, with the corners filled in so as to make it a square externally (No. 223 A, B). The dome, 92 feet in diameter, rests on four piers, provided with openings to form eight, thus bearing a similarity to S. Paul, London. The piers are so formed as to produce internally an octagonal effect, the openings leading to four angle chapels, which, being at a different level, appear independent of the dome. The triple dome is provided with windows in the drum, or lower portion, above which is an interior dome, 175 feet high, with a central opening; over this comes a second or middle dome, with painted decorations, visible by means of windows at its base; lastly, over all is an external dome crowned by a lantern of wood, covered with lead.

The construction differs considerably from that of S. Paul, London (No. 253), where an intermediate brick cone supports the external stone lantern.

The Pantheon (1755-81), **Paris**, was erected from the designs of Soufflot (A.D. 1713-81). The plan (No. 223 D) is approximately a Greek cross, four halls surrounding a central one, above which rises a dome, 69 feet in diameter. The dome is a triple one (No. 223 C) as that of the Invalides, mentioned above, but the outer dome is of stone covered with lead. The exterior of the dome is poor in comparison with that of S. Paul, because of the apparent weakness and want of variety of the unbroken ring of free-standing

FRENCH RENAISSANCE.



columns unattached to the drum. The interior of the church has an order of Corinthian columns with an attic over, and has been decorated recently with frescoes by foremost French artists. The vaulting is ingenious, and elegance has been obtained by a tenuity of support, which at one time threatened the stability of the edifice. The exterior (No. 224) has a Corinthian colonnade or portico at the west end, the cornice to which is carried round the remainder of the façades, which have a blank wall treatment, the light being obtained for the nave by a clerestory over the aisles.

The **Madeleine, Paris** (A.D. 1804) was erected by the architect Vignon. In plan it is an octastyle peripteral temple, 350 feet by 147 feet, showing a direct imitation of ancient Roman architecture, and being a further step towards absolute copyism. The external order has a defect, which often occurs in French buildings, viz., that the columns are built of small courses of stone, the joints of which confuse the lines of the fluting, and the architraves are formed into flat arches with wide joints. The interior is fine and original, the *cella*, as it would be called in a Classic structure, being divided into three bays, covered by flat domes, through the eyes of which is obtained all the light for the church. At the east end is an apse covered with a half-dome.

4. COMPARATIVE.

The essential differences between Italian and French Renaissance will now be treated in a comparative manner, but it must be borne in mind that the subject is treated generally, and that the comparisons state what usually is the fact, although in many cases features are found which do not exactly correspond with the type.

ITALIAN RENAISSANCE.

A. **Plans.**—The great feature of Italian houses is the *cortile*, or central open courtyard, which has, in all important examples, a colonnade or arcade round it. It is usual for the main wall, on the first floor, to stand on the piers or columns of this arcade, giving ampler space for the important rooms, which are in Italy, on the first or principal floor, called the “*piano nobile*” (Nos. 191, 196, 198, 208 and 217).

FRENCH RENAISSANCE.

A. **Plans.**—The castles of the previous period influenced both plan and design of the early *châteaux*, some of which were on the site of, or additions to, such castles. Chambord may be counted as an attempt at an ideal plan of a mansion, half castle and half palace (Nos. 220 and 221). The typical house plan in the towns has a main block, with two lower wings inclosing a courtyard cut off from the street by a screen wall.

ITALIAN RENAISSANCE.

B. Walls.—Straight façades varied by orders, arcades, or window-dressings were crowned by a deep cornice at the top (Nos. 191, 192, 197, 198 and 210). Attics are rare, but an open top story (Belvedere) is a feature in houses of all classes.—Brickwork was used in large and rough masses with ashlar facing, attention being concentrated on the window dressings or orders. Later examples, as at Genoa and Vicenza, are in plaster (Nos. 216 and 217).

C. Openings.—Symmetry regulated the position of openings, and in late examples the use of the Classic orders, rather than convenience, determined their position (Nos. 195, 196, 199, 200, 207, 215 and 216). Early designs were often astylar, the openings being the features upon which all the detail was concentrated (Nos. 191, 192 and 197). In the later buildings greater plainness prevails to give effect to the orders. In the Rococo period a return was often made to the astylar principle, when excessive prominence and exaggeration of detail marked the window dressings. As the attic was rare in Italian work, on account of the use of the great cornice, the top floor openings were often formed as a deep band, or frieze, or were set between consoles, which give support to the main cornice.

D. Roofs.—Flat or low-pitched roofs are special features, for the reason that in a narrow street the roofs could not be seen. Chimneys, if used at all, were masked as far as possible (Nos. 192, 195) except at Venice.

In early examples tile roofs were made visible above the

FRENCH RENAISSANCE.

B. Walls.—The gables and prominent stone dormers of the early period (Nos. 219, 220 and 225) gradually gave place to pedimented and balustraded elevations (Nos. 224 and 226). The mansard roof lent itself to pavilions which mark the angles of the façades, while the centre often has an attic (No. 223 E). Chimneys continue to be marked features, though less ornamented (No. 221). Stone was the chief material, but red brick was sometimes combined with it.

C. Openings.—In early designs the mullions and transoms of the Gothic method continued, though changed in detail (Nos. 219, 221 and 225 K). Vertical coupling of windows was effectively practised, but as the orders, usually one for each story, came increasingly into use, the horizontal lines of their entablatures prevailed (No. 220). Symmetry in position was carefully attended to in late work. Mezzanine floors were much used in large mansions, with circular windows (No. 226 J, K), the main apartments then having an upper row of windows, to preserve the range of openings externally (No. 226 R), so as not to interfere with the façade treatment. The attic was a special feature, and circular windows (*œil de bœuf*) often occur in it (No. 223 E).

D. Roofs.—High roofs are special features, with elaborately carved dormer windows and chimneys, which give sky-line and picturesqueness to the design when viewed from a distance (Nos. 221 and 222).

The French invention of the Mansard form preserved the roof

ITALIAN RENAISSANCE.

great cornice, the later being nearly always balustraded (No. 210 A). Domes were relied upon for sky-line in churches (Nos. 193, 199, 211 and 212). The "Belvedere" gives character to villas.

E. Columns. — Pilasters were either plain, or carved with delicate foliage (Nos. 196, 200, 204, 206 D, 214 J, 217, 218), while star-shaped sinkings are uncommon. The pilaster in Italy was preferred rather for its architectural importance as an "order," the panelled decoration being often omitted.

An "order" was often made to include two or more stories of a building. In churches especially a single order prevails, which was the type of Palladio (Nos. 200, 201, 203, 216).

F. Mouldings. — The heavy cornice was provided for protection from the glare of the Italian sun (Nos. 191, 192 and 197). In early examples, string courses were of slight projection, to give value to the top cornice. Where the orders were employed, the details assigned to each were used in full. Mouldings are usually large but well studied in profile.

G. Ornament. (Nos. 194, 206, 214 and 218). — Fresco and modelled plaster were much employed, in the early period the two being combined, as in the arabesques of Raphael. The frescoes were, however, sometimes out of scale with the architecture, and devoid of decorative value. Compare the Vatican, and the Palazzo del Té, Mantua. Later stucco work suffered in the same way, Venice having some extraordinary examples of its abuse. Interiors, generally in late work, were regulated unduly

F.A.

FRENCH RENAISSANCE.

as a feature (No. 223), and as it lent itself to pavilions, square or oblong, such features acquired great prominence, as at the Louvre, where they assume the importance of towers.

E. Columns. — Pilasters were decorative adjuncts to Gothic features, rusticated or panelled in star-shaped patterns, but sometimes treated with foliage (No. 225 H). At Chambord (No. 225 K), the sinkings were treated with a black inlay, slates being nailed in the sunk faces of the stonework.

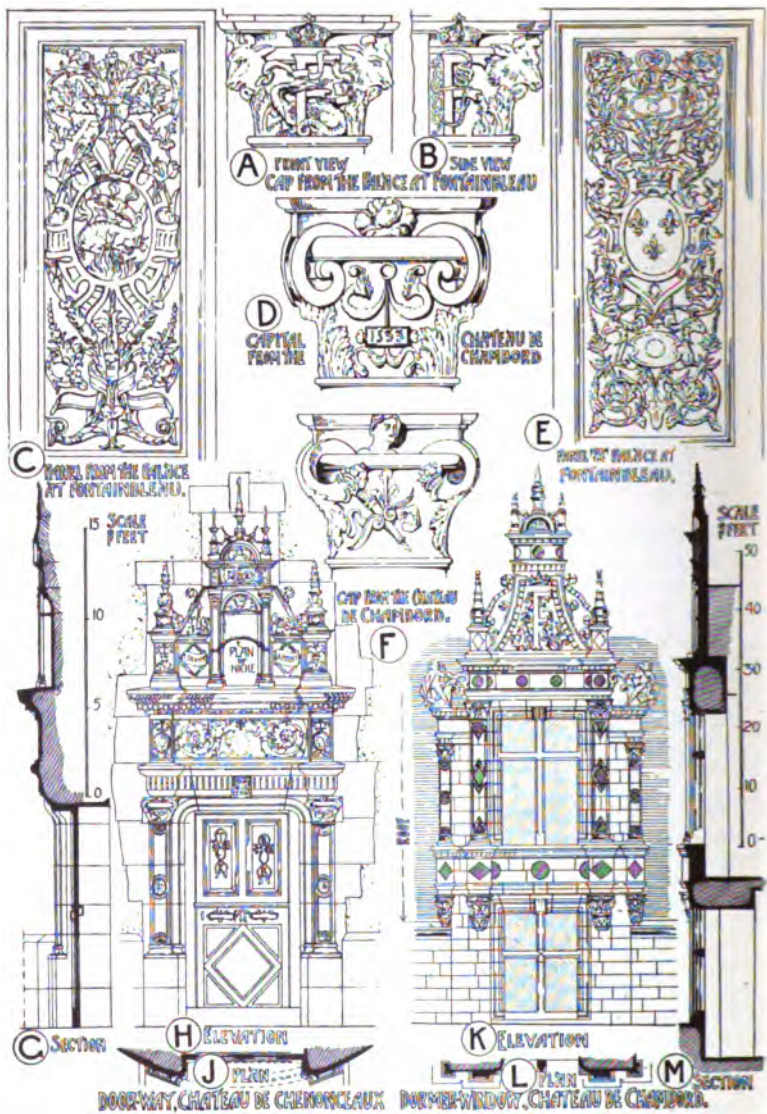
An "order" or column was usually given each story (No. 220). Columns usually do not run through two stories. The influence of Vignola in this respect is visible (Nos. 221, 223).

F. Mouldings. — Gothic influence pervaded the early work, and combinations of methods, Classic and Mediæval, in the profilings of mouldings were tried (No. 219). Some examples, as at Orleans, have extremely small members. The architecture gradually acquired a special character from the treatment of mouldings.

G. Ornament (Nos. 225, 226). — The wood panelling of Gothic times continued in the early period, often splendidly carved with arabesque designs, as at Blois. In later work it continued, but gradually lost the character and scale of the material. The Raphael style of decoration was introduced by Italian artists, as at Fontainebleau. The tapestry and hangings of the early period were superseded by the universal Louis XIV. style of internal wood, papier maché, and stucco decoration in white and gold. It was

L L

FRENCH RENAISSANCE ORNAMENT. I.



A KEY STONE (LOUIS XV)

B SIDE

C BALCONY (LOUIS XV) PARIS

D SECTION

E URN

F MIER-WINDOW (LOUIS XV) LYCÉE NAPOLEON, PARIS.

G SIDE

H FRONT CONSOLE (LOUIS XV) MUSÉE CASSETTE, PARIS.

I SECTION

J ELEVATION DOOR-WAY (LOUIS XV)

K SECTION

L LOUIS QUINZE STYLE OF DECORATION, VERSAILLES

M KEY STONE (LOUIS XV) RUE DE LA HARPE, PARIS.

N SECTION

O ELEVATION

P PLAN FOUNTAIN (LOUIS XV) PARIS.

Q SIDE ELEVATION

R DOOR & WINDOW (LOUIS XV) PARIS

S SECTION

T CORBEL & BALUSTRADE, PALAIS ROYAL (LOUIS XV)

U SECTION

ITALIAN RENAISSANCE.

by the features of Classic temple architecture, and have often no relation to the requirements of the occupants. Sculpture in later work lost touch with the decorative feeling of architecture, and great extravagances were perpetrated, as in the fountains of Rome.

FRENCH RENAISSANCE.

applied to every accessory, and had the merit of a certain fitness and unity. Sculpture acquired an increasing importance, and the best available figure sculpture has been used in connection with modern French architecture.

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GERMAN RENAISSANCE.

(See page 258 for German Romanesque.)
(See page 393 for German Gothic.)

" My niche is not so cramped but thence
One sees the pulpit o' the epistle side,
And somewhat of the choir, those silent seats,
And up into the æry dome, where live
The angels, and a sunbeam's sure to lurk ;
And I shall fill my slab of basalt there,
And 'neath my tabernacle take my rest."—BROWNING.

I. INFLUENCES (see page 437).

i. **Geographical.**—Refer to pages 258 and 393.

ii. **Geological.**—The absence of stone, in the great alluvial plains of North Germany, influenced largely the architecture of that district ; moulded and cut brickwork was used in every variety, the general scale of the detail being small, and surface ornamentation being formed in raised patterns.

iii. **Climate.**—Refer to pages 258, 393.

iv. **Religion.**—Martin Luther (1517–1546) attacked the practical abuses of certain doctrines of the Church, and brought about a revolution in the religious life of Germany (see below). Luther's translation of the Bible into High Dutch caused that language to become the recognised German tongue. In architecture little of great interest was produced, old churches, with all their fittings, continuing to be used, but the prominence given to preaching brought in galleries and congregational planning.

v. **Social and Political.**—The country consisted of a number of small kingdoms or principalities, each with its own capital and government, thus preventing any national effort as in France, which was under one united head. In the latter part of the sixteenth century, Heidelberg was the centre of "Humanism," and the chief reformed seat of learning in Germany. The Thirty Years' War, ended by the Peace of Westphalia in A.D. 1648, was of social importance.

In the eighteenth century the literary works of Winckelmann, Goethe and others aroused interest in Greek architecture.

vi. Historical.—Charles V. (Charles I. of Spain) succeeded to all the possessions of the Houses of Castile, Aragon, Burgundy, and the Low Countries, and this marks the period of the German Renaissance. In 1516 he obtained the two Sicilies, and in 1519, on the death of Maximilian, he was elected to the Empire, becoming the most powerful emperor since Charlemagne.

In 1517 Luther nailed up his theses at Wittenberg, marking the commencement of the Reformation, which was aided largely by the revival of learning, and in 1520 he defied the Pope, by publicly burning the bull of excommunication put forth against him by Pope Leo X. The Diet of Spires, 1529, passed a decree against all ecclesiastical changes, against which Luther and the princes who followed him protested, hence the name "Protestant." This led in 1530 to the Confession of Augsburg and the confederation of Protestant princes and cities, for mutual defence, called the Smalcaldic League. The war of the Emperor Charles V. and the Catholics against the Protestant princes extended from 1546–1555, when the Peace of Augsburg was concluded, which left each state free to set up which religion it pleased, but made no provision for those people who might be of different religion to the government of each state. This resulted in persecutions, and finally in the great religious war, known as the "Thirty Years' War," commenced in 1618, and carried on in Germany between the Catholic and Protestant princes. Other princes, such as Christian IV. of Denmark and Gustavus Adolphus of Sweden, joined in these wars on the Protestant side, under the Elector Palatine Frederick, who had married a daughter of James I. of England. Hence many Englishmen and Scotchmen served in these wars, and France joined in for her own aggrandizement, under Cardinals Richelieu and Mazarin. The Peace of Westphalia, 1648, provided once more for religious equality and tolerance in each state. The war had, however, utterly ruined Germany, and caused France to become the leading nation in Europe.

2. ARCHITECTURAL CHARACTER.

Refer to pages 439, 442.

This style as in other countries may be roughly divided into three periods corresponding to the sixteenth, seventeenth and eighteenth centuries.

The Renaissance style in Germany is chiefly remarkable for picturesqueness and variety of grouping, and quaintness and grotesqueness of ornament, due in a large measure to the traditions of the preceding style.

It was introduced from France, about the middle of the sixteenth century, while the Henri IV. style was in vogue, which may

GERMAN RENAISSANCE.



HEIDELBERG CASTLE, THE HEINRICHSBAU.

GERMAN RENAISSANCE.



account for a good deal of the grotesqueness and crudity which it possesses.

German Renaissance differs from French in lack of refinement, and in a general heaviness and whimsicality of treatment, while it resembles in some respects our own Elizabethan. It forms, in fact, a connecting link between Elizabethan architecture and French Renaissance of the time of Henri IV.

Examples are mostly found in towns, whereas in France they are principally found in the country (page 499).

The later period, which commenced at the beginning of the nineteenth century, has been called the "Revival," and was chiefly confined to Munich, Berlin, and Dresden. It consisted in the adoption of Classic forms *in toto*, without reference to their applicability, or appropriateness.

3. EXAMPLES.

SECULAR ARCHITECTURE.

Heidelberg Castle has interesting examples of the style, especially the façade of the *Heinrichsbau* (1556) (No. 227) of the early period, and the *Freidrichsbau* of the later period (A.D. 1601), which have elaborately-carved string courses, with an order and its entablature to each story, and classical details surrounding the windows. Symbolical statuary was prominently introduced (No. 231 A, B, C), but the design suffers much from over-ornamentation.

The **Gewandhaus, Brunswick**, originally executed in the Gothic, has its eastern gable (A.D. 1590) in this style. The three-quarter columns, with pedestals and entablatures, marking each floor, and the immense gable comprising four stories, each provided with an order of vase-shaped pilasters, as in Elizabethan work, are characteristic features. The scrolls by which the stages of the gable are contracted are also typical.

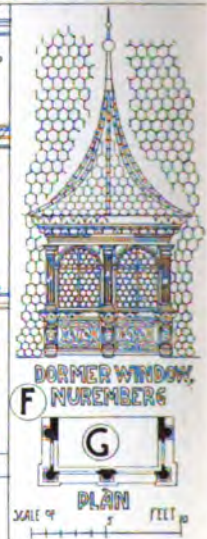
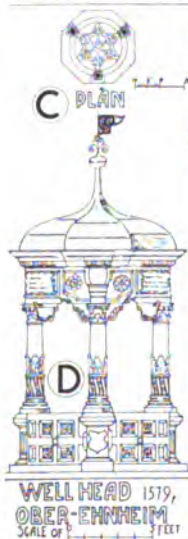
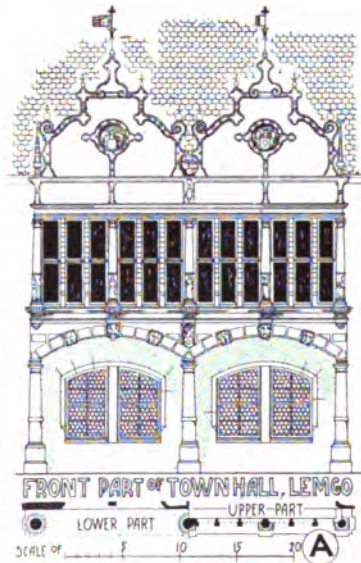
Nuremberg and **Hildesheim** are also rich in domestic examples of the period.

The **Rathhaus** (Town Hall), **Cologne**, has a fine two-storied porch (1571) (No. 228), in a style purer in detail than usually found. It consists of semicircular arcading, with detached Corinthian columns, and a stone vaulted roof. The arches on the first floor are pointed, as is also the vaulting.

The **Town Hall, Lemgo**, with mullioned windows and shaped gables (No. 229 A), and the **Town Hall, Solothurn** (No. 229 B), with pilasters and entablature to each story, are other characteristic examples.

The **Pellerhaus, Nuremberg** (A.D. 1605) (No. 230), is an

GERMAN RENAISSANCE EXAMPLES.



GERMAN RENAISSANCE.



230.

THE PELLERHAUS, NUREMBERG.

example of rich domestic architecture, which also has the elaborately-treated stepped gables, so characteristic of the period.

The **Gateway, Halberstadt** (1552), the **Castle, Stuttgart** (1553), the **Rathhaus, Leipsig** (1556), the **Rathhaus, Altenburg** (1562), the **Zeughaus at Danzig** (1605), the **Rathhaus, Heilbronn**, the **Stadtweinhaus, Munster** (1615), and the **Zwinger Palace, Dresden** (1711), are a few of the picturesque and free examples of the early period.

The **Revival** by *Klenze* the architect (A.D. 1784-1864) of the classical styles in Munich, is responsible for the **Glyptotek**, the **Pinacothek**, and the **Walhalla**. The **Brandenburg Gate, Berlin** (A.D. 1784), is well known, and the celebrated architect *Schinkel* (1781-1841) erected the **New Theatre**, the **Museum**, and the **Polytechnic School** in that city. In all of these buildings the great idea was to copy classical forms and details, applying them to modern buildings.

The **Parliament House, Vienna**, by Hansen (A.D. 1843) is an imposing edifice.

ECCLESIASTICAL ARCHITECTURE.

The new churches were few and insignificant, an abundant supply for all practical needs remaining from the mediæval period as in France.

S. Michael, Munich (A.D. 1582) and the **Frauenkirche, Dresden** (1726-1745) are among the best known buildings, and exhibit a desire for wide, open spaces. The latter especially is notable, being 140 feet square on plan, and having a dome 75 feet in diameter, resting on eight piers. It is constructed internally and externally of stone.

4. COMPARATIVE.

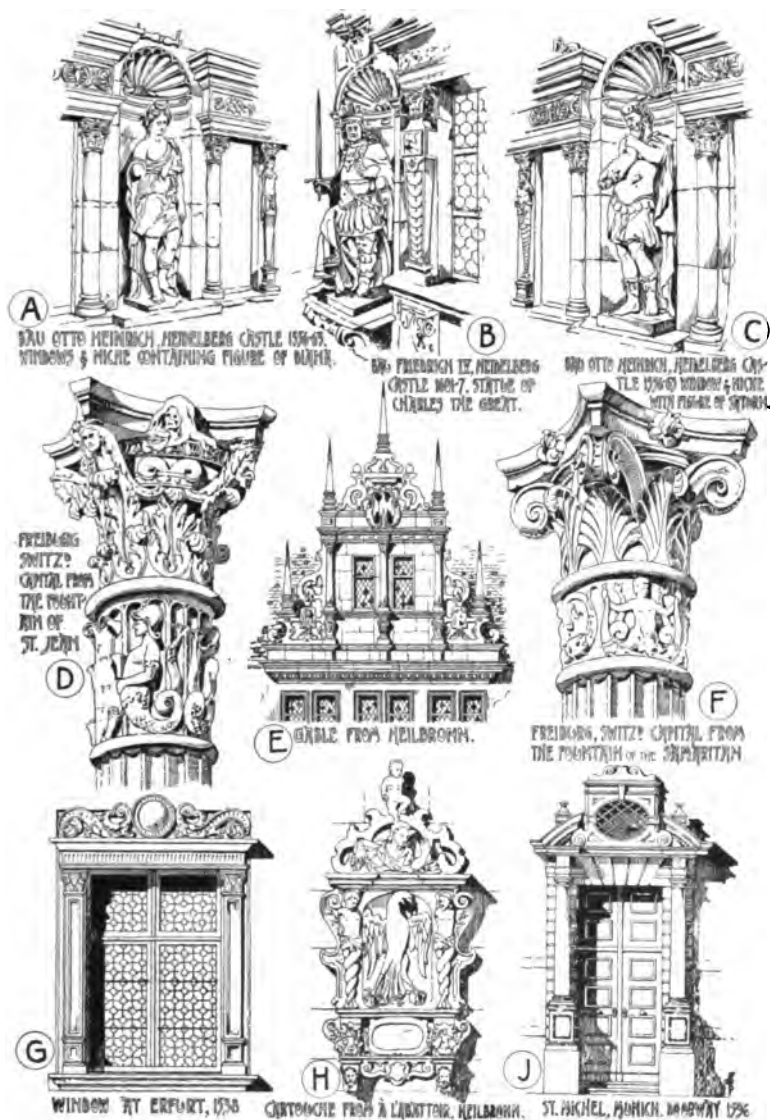
A. Plans.—The French method of an internal courtyard was adopted. In towns, many-storied houses were erected with great roofs, continuing the practice of the mediæval period.

B. Walls.—Gables assume fantastic shapes (Nos. 229 A and 231 E), and richness was produced by the application of columnar features as ornament (No. 230). Brick and stone were used singly and in combination.

C. Openings.—Oriental windows of various shapes and design were plentifully used, both in the façade itself (No. 230) and on the angles of buildings. Such features did not appear at Rome, Florence, or Venice during Renaissance times.

Windows are large, mullioned (No. 229 A), and crowned by grotesque, or scrolly pediments (No. 231 G). In the later periods

GERMAN RENAISSANCE ORNAMENT.



the usual Classic features were adopted (Nos. 229 E and 231 A, B, C, J).

D. Roofs.—The large roofs in the town houses, containing many stories (Nos. 228 and 230), are prominent features in this, as in the Gothic, period. Such roofs served a useful purpose, being used as drying-rooms during the periodical wash. There were two methods of treatment:—(a) making the ridge parallel to the street front, as generally carried out in Nuremberg; (b) making the ridge run at right angles to the street, as adopted in Landshut, in the south-east of Germany, and many other places.

The first allows for the display of many tiers of dormer windows (No. 229 F, G), rising one above the other, and the second method permits the use of fantastically-shaped gables (No. 229 A). The Pellerhaus, Nuremberg (No. 230), shows a combination of the two methods.

E. Columns.—The orders were employed in a free manner, as decorative adjuncts (Nos. 227–231), the stories being marked by rich cornices; the columns and pilasters were richly carved, and are often supported on corbels.

F. Mouldings.—Boldness and vigour must be set against the lack of refinement and purity in detail. Though Renaissance details were affected in the preceding style, the worst features of the last age of the Gothic style, such as interpenetration of mouldings and other vagaries, were given up.

G. Ornament (Nos. 229 and 231).—Sculpture is best seen in the native grotesques (No. 231 D, F, H), wherein much fancy is displayed, there being some fine specimens at Heidelberg (No. 231 A, B, C). The imitations of Italian carved pilasters as at Heidelberg are inferior.

The late glasswork is interesting, but the art soon died out.

Fresco work was attempted during the revival at the beginning of the century by the Munich school.

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BELGIAN AND DUTCH RENAISSANCE.

(See page 385 for Belgian and Dutch Gothic.)

“Many scarlet bricks there were
In its walls, and old grey stone
* * * * *
On the bricks the green moss grew,
Yellow lichen on the stone.
* * * * *
Deep green water filled the moat,
Each side had a red brick lip
Green and mossy with the drip of dew and rain.”—MORRIS.

1. INFLUENCES (see page 437).

i. **Geographical.**—Refer to page 385.

ii. **Geological.**—Refer to page 385. Brick is the characteristic material of this phase of the Renaissance.

iii. **Climate.**—Refer to page 385.

iv. **Religion.**—The persecutions begun under Charles V., and continued under the Duke of Alva, viceroy of Philip II. of Spain, led to a revolt in 1568 which lasted till 1609. The Belgians, being mainly Catholics, rallied to Spain, under the able rule of the Duke of Parma, but the Dutch, strongly Protestant, constituted the *United Provinces*, and finally under a republic became a great power. Their architectural expression was limited, the barn-like churches developing no features of great interest. The prominence given to preaching, and the demand for greater comfort regulated planning, but, whether for lack of interest or funds, nothing on a large scale was attempted.

v. **Social and Political.**—In Holland the character of the Dutch is shown in their buildings, which are in general honest, matter-of-fact, and unimaginative. The increase of riches through trade in consequence of the discovery of the New World by Columbus, was not, however, mirrored by the erection of monumental structures. Their daring and activity in trade made them one of the chief powers of Europe during the

seventeenth century, but their extensive colonies gradually passed over to the English.

vi. Historical.—The Spanish occupation of the Netherlands, and the consequent influence of Spanish art in the sixteenth century, together with the loss of liberty under Charles V., and the ultimate expulsion of the Spaniards in 1648, must all be taken into account in this section. Belgium, as a Catholic country and a Spanish province from A.D. 1506–1712, remained under the rule of Spain, when Holland freed herself under the House of Orange.

2. ARCHITECTURAL CHARACTER.

Refer to pages 439, 442.

Belgian examples are wild and licentious, but picturesque in the matter of design; while Dutch examples are plain, often approaching dullness. The design of houses and fittings received a large amount of attention, and details of internal work, including furniture, were perfected. Brick received its due prominence in this domestic style.

3. EXAMPLES.

The **Town Hall, Antwerp**, erected by de Vriendt in A.D. 1565 (No. 233), is one of the most important buildings, the richness and prosperity of this particular city contributing not a little to the execution of this fine work. An order, or row of columns, and mullioned windows were employed in each upper story, the whole design being placed on a sturdy rusticated basement, and crowned by a high-pitched roof with dormer windows.

The **Hotel du Saumon, Malines**, the **Ancien Greffe, Bruges**, the **Archbishop's Palace, Liege**, the **Stadthaus, Amsterdam** (only worthy of mention for its great size), the **Hague Town Hall** (A.D. 1565), and **Leyden Town Hall** (A.D. 1579) (No. 232 G) are other examples. Among recent works, the **Palais de Justice, Brussels**, in the Neo-Grec style, by Polaert, is an imposing edifice.

Domestic Architecture.—Although there are few large or important works erected during the Renaissance period in north-west Europe, still great benefit may be derived from studying much of the domestic and civic architecture; for while wandering through the streets of these old-world towns, many charming specimens of street architecture, executed in bright red brick, with occasional stone courses and dressings, and with additional ornament of gracefully-designed iron ties (No. 234 D), are met with. In the design of the gables, much originality of treatment is found (No. 232 D, G), leaning rather towards the work found in

A PINNACLE HARELEM

B FINAL HARELEM

C FLECHT FROM HARELEM. 6 5/8-7Z BUILT P WOOD 600000 MIN METAL 6 SLATES.

D GABLE ANTWERP.

E FLECHT FROM HARELEM.

F PILASTER FROM UTRECHT CITY.

G TOWN HALL LEYDEN A.D. 1597.

H PILASTER FROM UTRECHT CITY.

WOOD

STONE

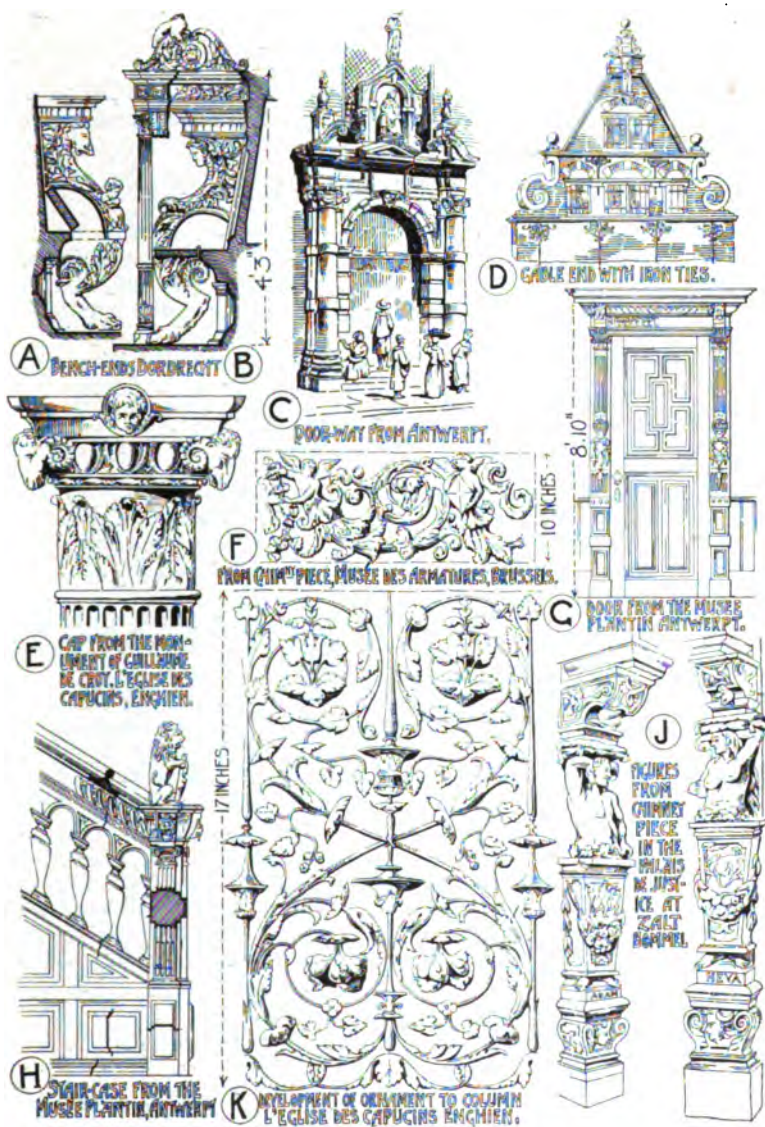
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BELGIAN AND DUTCH RENAISSANCE.



BELGIAN AND DUTCH RENAISSANCE ORNAMENT.



some of the old German towns, and often verging on the grotesque, but at the same time thoroughly suited to the use of bricks, and possessing a certain characteristic quaintness.

Many of these street fronts are good examples of the treatment of large window spaces.

In Holland, especially, these quaint buildings, of varied colors, rising very often from the sides of canals, group most harmoniously, and form fascinating studies for water-color sketching.

4. COMPARATIVE.

A. **Plans.**—The great development of domestic Gothic formed the groundwork of the achievements of the Renaissance in these countries. It was in the modifications of detail that the influence of the latter was felt, Italian forms, generally much corrupted, being gradually adopted.

B. **Walls.**—Gables of curly outline, grotesque, picturesque, and rococo in character, are crowded together in streets and squares. Their general effect and grouping must be enjoyed, without too much inquiry into their *rationale* or detail (Nos. 232 D, E, G and 234 D).

C. **Openings.**—These were numerous and crowded, and were in continuation of the Gothic practice (No. 232 D). The orders took the place of the niches, statuary, and traceried panelling, that surround the windows of the previous period (Nos. 232 and 234 C, G).

D. **Roofs.**—The high-pitched forms continued long in favour, as well as the dormers, towers of many stages (No. 232 C, E), and visible chimney stacks (Nos. 232 and 233).

E. **Columns.**—The orders were used as decorative features, being heavily panelled, rusticated, and otherwise treated in a licentious and grotesque fashion (Nos. 232 G and 234 C, G, J).

F. **Mouldings.**—The same defect, that of coarseness, referred to under Gothic, continued in this period, and the further divorce of detail from construction and material rather accentuated the evil.

G. **Ornament** (No. 234).—Carving of vigorous grotesques occupies any vacant panel or space (Nos. 232 F, H and 234 K), the *motifs* being usually Italian, "corrupted" or "original," according to the critic's point of view. The woodwork (No. 234 A, B, F, H) and stained glass of this age are especially worthy of study.

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SPANISH RENAISSANCE.

(See page 424 for Spanish Gothic.)

"For God, the universal Architect,
It had been as easy to erect
A Louvre or Escorial, or a tower
That might with Heaven communication hold,
As Babel vainly thought to do of old ;
He wanted not the skill or power."—COWLEY.

I. INFLUENCES (see page 437).

i. **Geographical.**—The position and power of Spain, arising from the discovery of the new world, combined with the vast hereditary and conquered possessions of the Spanish monarchy, made her the leading nation in Europe.

ii. **Geological.**—Refer to page 424. The presence of very pure iron ore, in the northern mountains, facilitated the development of decorative ironwork. Granite was much used, and brick was also employed in certain parts.

iii. **Climate.**—Refer to page 424.

iv. **Religion.**—The Reformation obtained no hold whatever in Spain. The religious aspect of the great struggle with the Moors, and the national character of the church have already been mentioned (page 424). The counter reformation found its motive force in the Jesuit order, founded by a Spaniard, Ignatius de Loyola.

v. **Social and Political.**—The people were a mixed population, in which the Goths of Northern Europe and the Moors of North Africa formed the most important elements.

From the latter part of the fifteenth century the power of Spain gradually increased, until she became the chief power of Europe. Absolute despotism was the policy of Philip II., Jews and heretics being persistently persecuted. Under Philip III. (1598–1621) the Moriscos were driven out of the country, and this proved a great loss to Southern Spain, which by their hard work had been made to flourish.

vi. **Historical.**—The accession of Ferdinand and Isabella to the throne, and the fall of Granada in A.D. 1492, mark the

consolidation of Spain, the expulsion of the Moors, and the beginning of the Spanish Renaissance.

The great dominions of Spain were due to a succession of marriages, Charles V. reigning over Spain, the Netherlands, Sardinia, Sicily, and Naples, Germany, and Austria. This empire was held together by his skill in government, and by the excellence of the Spanish army, the infantry being the finest at that time in Europe. Philip II. checked the power of the Turks by winning the great naval battle of Lepanto, 1571, but his harsh and despotic rule alienated the Netherlands, and the expedition against England ended in the defeat of the Armada in 1588. Provinces were gradually lost, and Spain as a power ceased to exist. Napoleon's invasion, at the commencement of the nineteenth century, led to an outburst of national resistance, which was aided by the English. Many revolutions followed, but progress, as understood by other nations, has been slow.

2. ARCHITECTURAL CHARACTER.

Refer to pages 439, 442.

The style, as in other European countries, may be divided into three tolerably distinct periods:—

(a) The *Early Renaissance Period*, lasting to the middle of the sixteenth century; (b) The *Classical Period* of the latter half of the sixteenth century and the first half of the seventeenth century; and (c) The *Rococo Period* of the latter part of the seventeenth and the eighteenth century.

In the early period, Renaissance details, grafted on to Gothic forms, and influenced to some extent by the exuberant fancy of the Moorish work, produced a style as rich and poetic as any other of the numerous phases of the Renaissance in Europe. The style of this period, from being minute in detail, is called "Plateresque," from its likeness to silversmith's work, from "platero"—silversmith.

The middle period became more classical, as was the case in Europe generally, and the chief expositors were the architects Berruguete (d. 1560), and Herrera (d. 1597), a pupil of Michael Angelo.

The late period shows that the style, known as Churrigueresque, fell away from true principles, becoming imbued with the Rococo innovations.

3. EXAMPLES.

SECULAR ARCHITECTURE.

The **University, Alcala** (A.D. 1500–1517), has an open arcaded story under the roof—a specially characteristic feature—and details showing the lace-like character of the Plateresque period.

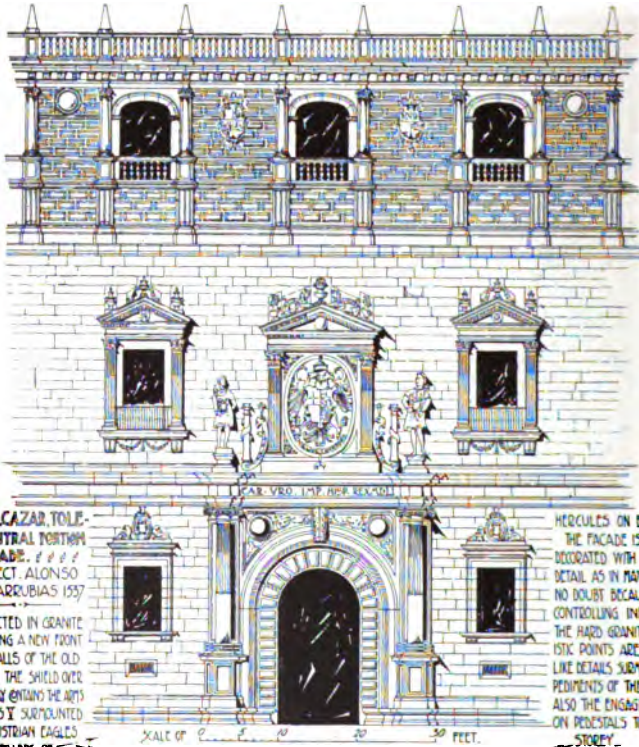
SPANISH RENAISSANCE.



235.

TOWN HALL, SEVILLE.

SPANISH RENAISSANCE EXAMPLES.



(A)

THE ALCAZAR, TOLEDO. CENTRAL PORTION OF FACADE. 1537 ARCHITECT, ALONSO DE COVARRUBIAS 1537

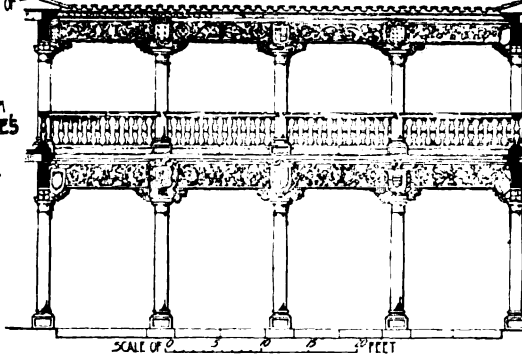
CONSTRUCTED IN GRANITE AND FORMING A NEW FRONT TO THE WALLS OF THE OLD BUILDING. THE SHIELD OVER THE DOORWAY CONTAINS THE ARMS OF CHARLES V. SURMOUNTED BY THE AUSTRIAN EAGLES WITH THE PILLERS OF

HERCULES ON EITHER SIDE. THE FACADE IS NOT HEAVILY DECORATED WITH SCULPTURES DETAIL AS IN MANY EXAMPLES NO DOUBT BECAUSE OF THE CONTROLLING INFLUENCE OF THE HARD GRANITE. GRACIOUS DETAIL POINTS ARE THE BASE LINE DETAILS SURMOUNTING THE PEDIMENTS OF THE 1ST STOREY. ALSO THE ENGAGED COLUMNS ON PEDESTALS TO THE TOP

SCALE OF 0 10 20 30 FEET.

STOREY.

EXAMPLES FROM
A.N. PRENTICES
RENAISSANCE
ARCHITECTURE
& ORNAMENT
IN SPAIN 2



THE CASA POLENTINA, AVILA. 1512 (?) ELEVATION OF ONE SIDE OF THE PATIO OR COURT-YARD. A PROBABLE REFINEMENT OF THE ROMAN ATRIUM AND THE ITALIAN CORTILE. A SPECIAL FEATURE IS THE BRACKET CAPITAL ASSISTING IN THE LONG BEARINGS OF THE ARCHITRAVE WHICH IN THIS CASE ARE IN ONE PIECE FROM COLUMN TO COLUMN. EXECUTED IN GREY GRANITE.

SCALE OF 0 5 10 15 20 FEET

The **Archbishop's Palace, Alcala**, is also noteworthy. The "bracket" capitals, on the first floor in the courtyard, are undoubtedly of wooden origin, their use being to decrease the long bearing of the architrave.

The **Casa Miranda, Burgos** (No. 237), has a "patio" or courtyard, a feature mostly found in Spanish buildings, and the columns have typical bracket capitals.

The **Casa Lonja** (Exchange), **Seville**, was built (1583-98) from the designs of the architect Herrera. It has a rich façade (No. 235), and a handsome "patio" surrounded by a double storied arcade in the Doric and Corinthian orders. It has been considerably extended at later periods, but much of the stonework has remained uncarved. It is generally regarded as the best example of a municipal building in Spain.

The **Alcazar, Toledo**, an ancient square castle of Moorish-Gothic architecture, has one façade (A.D. 1548) (No. 236 A) in the early Renaissance of Charles V., while the interior possesses a fine "patio" surrounded by arcades in two stories, supported on Corinthian columns. On the south side is a grand staircase inclosed in a space, 100 feet by 50 feet, and having off the half landing a grand square two-storied chapel. The back elevation is an early example of a many-storied building in the classical style, the whole of this severe and monumental building being executed in granite.

The **Palace of Charles V., Granada**, adjoining the "Alhambra," was erected in 1527 by Machuca and Berruguete, and is an important structure. In plan it is a square, 205 feet each way, inclosing an open circular court 100 feet in diameter. The external façade is two stories in height, the lower being rusticated, and the upper having Ionic columns. Both basement and upper story have bull's-eye windows above the lower openings, so that mezzanines could be lighted where these occur. The circular internal elevation is an open colonnade in two stories, with the Doric order to the lower, and the Ionic order, of small height, to the upper story.

The structure is built in a golden-colored stone, the central feature of the two visible façades being in colored marbles. The sculpture is by Berruguete, and the whole design, which is of the Bramante school, is the purest example of Renaissance in Spain. The palace was never roofed in or occupied.

The **Palace of the Escorial** (No. 238 c), near **Madrid**, was commenced by Juan de Bautista for Philip II., but in 1567 Herrera was appointed architect. It is a group of buildings on a site 740 feet long by 580 feet wide, exclusive of palace, and consists of a *monastery, college, palace, and church*, all grouped into one design. The grand entrance, in the centre of the long façade, leads into an atrium, to the right of which is the college with its

SPANISH RENAISSANCE.



237.

BURGOS.

“Patio” of the House of Miranda, showing the
Bracket Capital.

four courts, 60 feet square, surrounded with three stories of arcades, and beyond is the great court of the college. On the left of the atrium is the monastery, with three courts 60 feet square, and beyond is the great court of the palace. Immediately in front, at the end of the atrium, is the church, lying between the courts of the palace and the college. Behind the church, which is 320 feet by 200 feet, are the state apartments of the palace.

The plan of the church is Italian in origin, following somewhat the type of the Carignano Church at Genoa. The detail is classical, and shows that Herrera studied to some purpose in Italy. The principal Spanish feature is the placing of the choir on a vault, over the lengthened western arm of the cross, beneath which is a domed vestibule—consequently the interior is, in effect, a Greek cross on plan.

In general grouping nothing could be finer than the dome as a centre, flanked by the two towers and surrounded by the great mass of building, the whole being silhouetted against a background of mountains. Moreover, the palace proper at the east end is only an annex, and does not conflict with the church, as the Vatican does with S. Peter, Rome.

The entire structure, internally and externally, is built in granite of a gray color, with a slight yellow tinge, which material may have influenced the design. The taste of Philip II. and Herrera might have produced something equally plain, whether in granite or not, but at least the design may be said to be suited to the material.

The masonry is excellent, and in blocks of great size, the architraves of doors being 10 to 12 feet high, in one stone. The external façades are everywhere five stories in height, the windows square-headed, without dressings of any sort, and without any attempt at grouping, so that they are inferior in effect to the façade at the Alcazar, described above.

The interior, however, is most impressive, being of granite with suitable detail, and having only the vaults colored. It has a magnificent reredos in such quietly-toned marbles that its richness might pass notice. The architectural character is so restrained that the structure looks nothing at a cursory glance.

ECCLESIASTICAL ARCHITECTURE.

Santo Domingo, Salamanca (A.D. 1524–1610), is an important early work with excellent figure sculpture, and illustrates the peculiar richness of the “Plateresque” style (page 534), deriving its detail from Moorish influence.

Burgos Cathedral has a magnificent dome (No. 186) belonging to the early period (1567), and is an example of the wealth of detail so characteristic of the style.

Granada Cathedral (A.D. 1529), by Diego Siloe, is a grand example of the Renaissance churches of Southern Spain. It is a translation of Seville Cathedral into the Renaissance style, the Gothic system being followed, but with the Classic orders applied to the piers carrying the vaulting. The lofty circular choir is domed on radiating supports, ingeniously disposed, constituting a fresh and original departure. The general effect of the interior is powerful, but unduly sensational.

Valladolid Cathedral (A.D. 1585), by Herrera, is more distinctively Classic, but remains incomplete, although Herrera's model is preserved. The west façade is imposing, but wholly out of scale, and in the interior the execution and detail are incredibly rough.

Granada, Santiago, Malaga, and Carmona cathedrals have steeples placed alongside, forming a class of structure in which Spain is especially rich, and which was generally treated in a most pleasing manner.

In the latter half of the seventeenth century there was a reaction from the correct and cold formalities of the school of Herrera, and buildings were erected in a manner called Churrigueresque, after the name of the architect, Churriguera, in which fantastic forms were employed for their own sake, without reference either to good taste or fitness.

4. COMPARATIVE.

A. Plans.—In churches wide naves sometimes without any aisles are usual. Lanterns or domes are common at the crossing, the transepts and apsidal chancel, being usually shallow, and the ritual choir remaining west of the transepts.

In houses the *Patio* (Nos. 236 B and 237), or Spanish version of the Roman atrium, and Italian cortile, is universal, and has even an added seclusion, which seems due to Moorish influence. The streets of Toledo present walls all but blank (No. 236 A), through the doorways of which, when open, a glimpse only of the *patio* can be obtained. Staircases are often large, as in the Burgos transept and the Casa Infanta at Saragossa, in which latter building the *patio* and staircase beyond are as picturesque and fanciful as any in Spain. Largeness of scale characterizes palaces as well as churches.

B. Walls.—Brickwork was used in large, rough, but effective masses, as at Saragossa. Fine stonework was used in other places, and also granite, as at the Escorial and in Madrid. Gables were never or rarely employed, but a special feature is an arcade (No. 236), forming an open top story, on which all the decoration was concentrated, leaving a blank wall below, relieved by an elaborate doorway. Arabesque pierced parapets or crests are

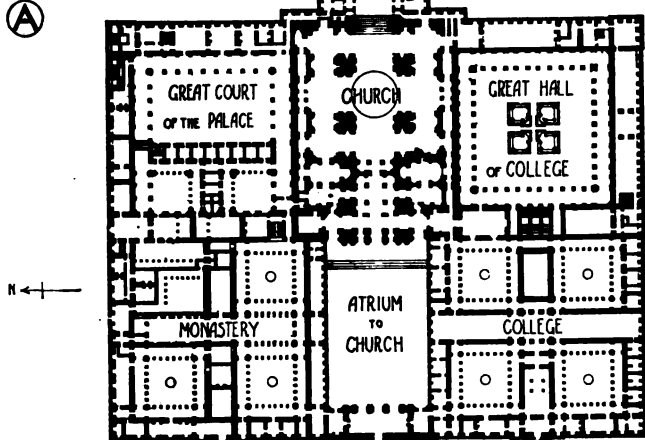
COMPARATIVE PLANS OF VARIOUS BUILDINGS

THE KING'S HOUSE
GREENWICH, 1639
INIGO JONES, ARCHITECT

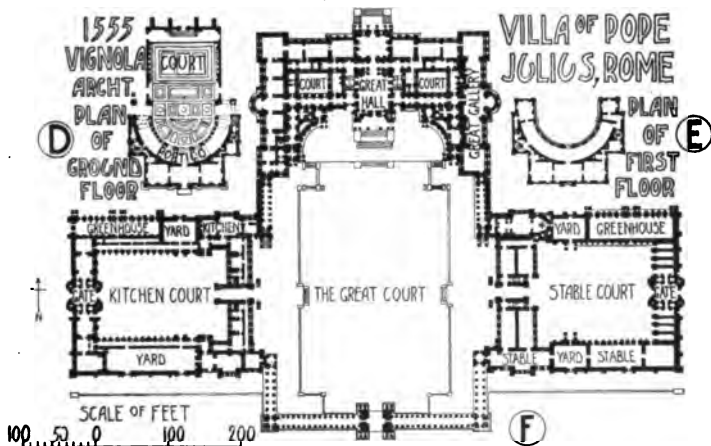


THE ROTONDA
VICENZA, (B)
PALLADIO, ARCHITECT

(A)



(C) THE ESCORIAL, 1567 (HERRERA, ARCHITECT)



BLenheim PALACE, 1715 (SIR JOHN VANBRUGH, ARCHITECT)

common in the early work, as the Palacio de Monterey at Salamanca. At Saragossa, the great cornices of the brick palaces are of wood, elaborately detailed. Internally the great saloons of the early period are remarkable, the walls, for ten or more feet in height, being of plain stonework, to be hung with draperies.

c. **Openings.**—Doorways were emphasized (No. 236 A), and at Toledo they alone relieve the blank, narrow, walled streets. A special largeness of scale (No. 239 A), was perhaps due to the importance of a gateway in oriental countries—a feature found in Spain owing to Saracenic influence.

Windows were treated with well-designed grilles, and their dressings in stonework are frame-like in character (Nos. 235, 236 A and 239 D), small orders, resting on corbels, often carrying a highly ornamented head (No. 239 D), while the sill is often absent or untreated.

D. **Roofs.**—These were generally flat or of low pitch. Towers, however, have spires of slate or leadwork of fanciful outline, even in designs of the severe Classic period, and the angle towers of the Escorial may be compared with the spire of S. Martin, Ludgate (London). Saloons sometimes have a light-arcaded internal gallery resting upon a great projecting wooden cornice, and reaching to the flat wooden coffered ceiling, affording a passage in front of the windows in the main wall, and detailed in a style suggestive of Arab influence, as in the "Audiencia" at Valencia.

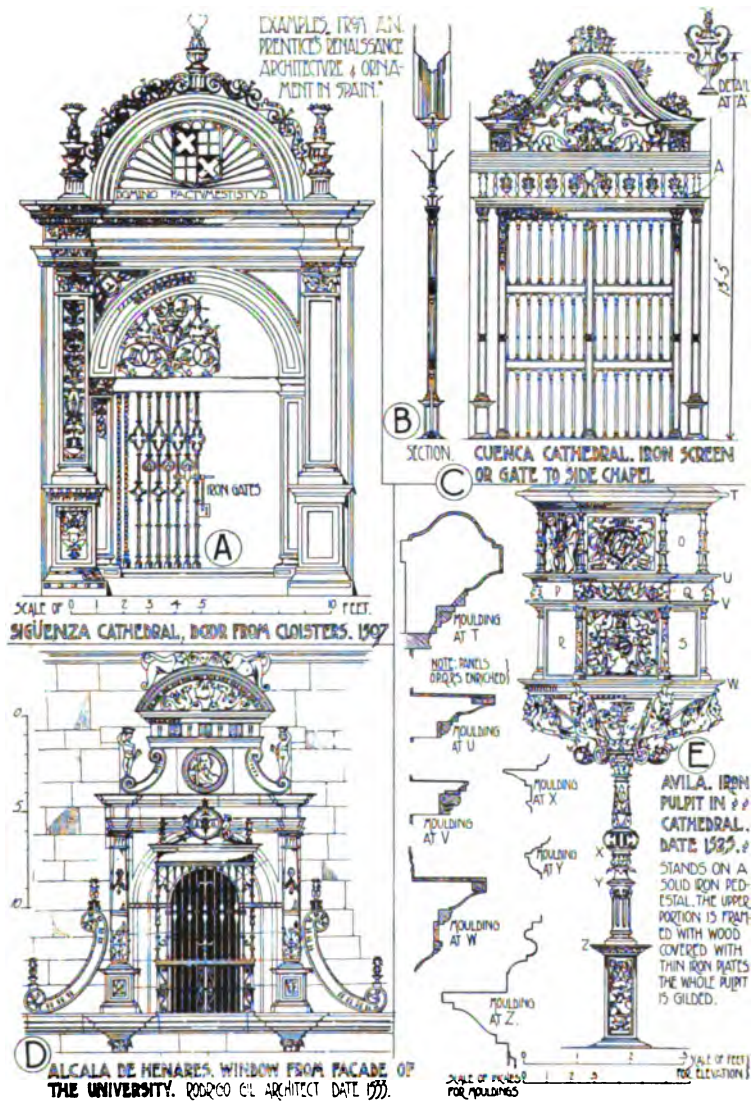
E. **Columns.**—In the early style, the orders were used in slight and fanciful decorative forms (Nos. 235, 236 and 237); the baluster shape, or shafts of an outline suggestive of the forms due to wood turned in a lathe, were used abundantly, being decorated in low relief. Columns in arcades sometimes had very high pedestals, from the top of which the arches spring. In the later work, Classic correctness prevailed until the outbreak of the Rococo period.

F. **Mouldings.**—In early work, much refinement (No. 239) was given to forms due to Gothic and Moorish influences. A special feature is the bracket capital (Nos. 236 B and 237), by which the long bearings of stone architraves are relieved by corbels on either side, combined in treatment with the capital itself.

In the middle period, the great number of breaks which occur in the entablatures mitred round columns (No. 235) give to the church interiors quite a special effect by the flutter of the many mitres.

G. **Ornament** (No. 239).—Sculpture varies much in quality. Berruguete was the Donatello of the Spanish Renaissance, but his figures often are wanting in decorative treatment. Expression

SPANISH RENAISSANCE ORNAMENT.



was often emphasized unduly, and violence of action is not uncommon (No. 235).

The painting on the sculpture is usually crude and realistic. The great *retablos* of alabaster, stone, or wood are the finest decorative feature of the churches, the figures being often life-size, and the architectural detail very elaborate. The iron *Rejas*, or grilles, are also a source of effect (No. 239 A, B, D).

Tile work is excellent in Southern Spain. Stained glass tended to be loaded in color and over vivid, and the drawing is frequently clumsy, Flemish influence, not of the best kind, being apparent. The fresco work of the Escorial is merely late Italian, and the canvases of Murillo at Madrid and at the church at Seville, though large in scale, have the character of paintings in oil. In the accessory arts, the iron pulpit (No. 239 E) is an example of the elaborate metal work of the period, and armour design was carried to great perfection by the Spaniards.

The subject of the Renaissance in Spain has been well taken up by architectural students of late years, and the following books contain interesting examples.

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WESTERN EUROPE AT THE TIME OF ELIZABETH



240.

ENGLISH RENAISSANCE.

“St. Paul’s high dome amid her vassal bands
Of neighbouring spires, a regal chieftain stands
And over fields of ridgy roofs appear,
With distance softly tinted, side by side
In kindred grace, like twain of sisters dear,
The towers of Westminster, her abbey’s pride ;
While far beyond the hills of Surrey shine
Through their soft haze, and show their wavy line.”—BAILLIE.

I. INFLUENCES (see page 437).

i. Geographical.—Refer to page 278. It would be hazardous during this period to lay too much stress upon the relations of England with the Continental powers; but the relative cordiality of this country with France, or Holland, might be seen by some to be reflected in the architectural fashion of successive periods. The closing of the Continent to travel during

F.A.

N N

ENGLISH RENAISSANCE.



241.

THE HALL, HATFIELD, HERTS.
Showing the Music Gallery.

the great war at the end of the eighteenth, and beginning of the nineteenth century, certainly coincided with the worst phase of English architecture.

ii. Geological.—Refer to page 278. In the increase of population and cultivation of the land, the forests of Lancashire, Cheshire, Shropshire, and Herefordshire were reduced, and wood had been gradually disused as an external building material, so that the timber architecture of the mediæval period had died out. In London, the introduction by Inigo Jones of Portland stone, a material very similar in weathering and effect to that used in the Renaissance palaces of Venice, had its influence. The use of brick received a great impetus after the Fire of London, and was again brought into prominence on the introduction of the Dutch fashion, and thus "Flemish" bond, as a technical term, has its significance.

Terra-cotta for ornamental details was introduced by the Italian craftsmen of Henry VIII., as in the busts of Emperors at Hampton Court by Giovanni da Majano, the tomb in the Rolls Chapel (A.D. 1516) by Torrigiano, and at Layer Marney, Essex (1500-1525).

iii. Climate.—A great increase of warmth was found necessary as greater comfort was demanded, and the opening out of the great coal industry, by cheapening fuel, led to each room having a fire-place, and incidentally, to other features that did not complicate the architecture of the earlier periods.

iv. Religion.—In the early part of the sixteenth century a stir in religious matters took place in Western Europe, partly on account of abuses having crept into the Church, which the Popes failed to rectify, and also because the authority of the Pope was increasingly felt to be irksome.

The suppression of the monasteries (1536-1540) caused the diffusion of vast sums of money and land, which Henry VIII. distributed freely among his courtiers.

Monasteries either fell into ruin or were converted into cathedral churches on the monastic foundation. Others were cleared away for the erection of houses according to the new style, the funds for which enterprises proceeded from the newly seized revenues.

The Act of Supremacy, 1559, settled the relation of the English Church to the power of the Crown.

v. Social and Political.—The historical and other events which paved the way for the introduction of the Renaissance into England were many and significant, and some of these have been dealt with (pages 283, 356, 438). The following also aided the movement :—

The Wars of the Roses (1455-1485) caused a terrible destruction of life, eighty princes of the blood being slain, while the ancient nobility was almost entirely annihilated, resulting in a

ENGLISH RENAISSANCE.



period of architectural depression, from which there was a reaction at the end of the fifteenth century. The new nobility and rich merchants were naturally more susceptible to any fresh movement; they desired, moreover, important country houses, being anxious to provide themselves with the paraphernalia suited to their rank, or newly acquired wealth.

The extended use of gunpowder rendered ancient castles obsolete, and newer fortresses tended to become merely military posts, no longer habitable as palaces by a king, or as seats by the nobility.

The introduction of printing by Caxton (1476) powerfully aided the new movement, as the hoarded knowledge of the world could then be disseminated, causing the enlargement of men's ideas and the increased spread of knowledge throughout the country.

The court of Henry VIII. was composed of men who were connected with the new movement, and amongst the artists, were:—Holbein, from Basle; Torrigiano, who executed Henry VII.'s Tomb in Westminster Abbey (A.D. 1512); Rouezzano and Giovanni da Majano. A certain John of Padua was also brought to England by Henry VIII., and is usually credited with the design of Longleat House, Wiltshire (page 557).

Henry VIII. and Edward VI. employed part of the funds obtained from the suppression of the monasteries (1536–1540) to the erection and endowment of grammar schools and colleges, which play an important part in the development (pages 324, 557).

The Protector Somerset commenced building schemes which were interrupted by his execution (A.D. 1552).

The reign of Elizabeth (A.D. 1558–1603) inaugurated the era of the erection of the great domestic mansions. Flemish and German workmen and weavers came to England in large numbers, settling in the eastern counties especially, thereby influencing the architecture of certain districts. In literature the writings of Spenser, Shakespeare, Burleigh, and Sir Philip Sidney had considerable influence.

Finally, the wars against the Huguenots in France, and the Massacre of St. Bartholomew in A.D. 1572, led to the emigration of many skilled craftsmen to England (page 498), thus influencing very largely the efficient execution of the newly-imported Classic architecture.

vi. Historical.—Henry VIII. had undisputed possession of the English crown. He mixed generally with foreign affairs, and his meeting with Francis I. on the Field of the Cloth of Gold, 1520, was an event of some significance, bearing an important relation to the introduction of Renaissance art into England. Henry declared the Pope to have no jurisdiction in England, and Edward VI. continued the Reformation, but Mary's policy was reactionary, and marks the era of Spanish influence in England. Under Elizabeth (1558–1603), the Reformation was finally settled,

ENGLISH RENAISSANCE.



LONG GALLERY, HADDON HALL, DERBYSHIRE.

and the defeat of the Spanish Armada, 1588, marked the decline of Spanish power in Europe. Charles I.'s attempts to develop art were interrupted by the outbreak of Puritanism. Charles II. was in the pay of Louis XIV., and England was much under the influence of French art. The rise of Holland was taking place, and on the expulsion of James II. by William of Orange, Dutch influence made itself felt. With the accession of George I. (the Hanoverian dynasty) commenced an era of quiet domestic progress. The growth of London proceeded rapidly, but art in England slowly deteriorated, until the Exhibition of 1851 marked the commencement of a revival in all forms of art.

2. ARCHITECTURAL CHARACTER.

English Renaissance architecture may be divided into the following periods:—*Elizabethan* (A.D. 1558–1603), see below; *Jacobean* (A.D. 1603–1625), page 561; *Anglo-Classic* (Seventeenth Century), page 567; *Queen Anne* and *Georgian* (Eighteenth Century), page 578; *Early Victorian* (Nineteenth Century) (A.D. 1800–51), page 589; *Late Victorian* (Nineteenth Century) (1851–1901), page 593.

THE ELIZABETHAN STYLE.

ELIZABETH (A.D. 1558–1603).

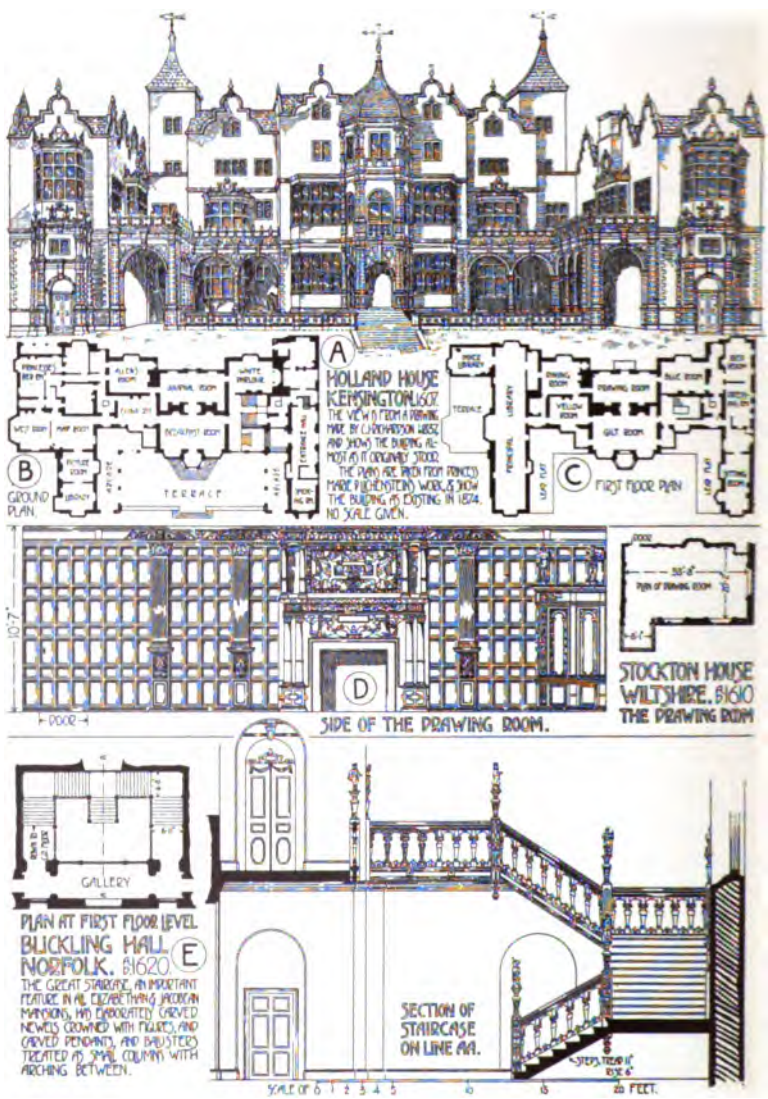
Elizabethan Architecture was a transition style, which followed the Tudor style of the reigns of Henry VII. and Henry VIII. (page 536), for many Gothic features were retained and ornamented with Renaissance details which were at first applied only in a tentative manner. The style bears the same relation to Anglo-Classic, or fully-developed English Renaissance, as the Francis I. style does to fully-developed French Renaissance.

As during the Middle Ages a sufficient number of churches had been erected for the wants of the people, few were built in this period. This was also the case in France and Germany; whereas in Italy churches of this period were many and important.

The examples of Elizabethan architecture, like those of the French Renaissance, were country houses erected by powerful statesmen, successful merchants, and newly-enriched gentry; contrasting with the palaces and churches of the Italian Renaissance, principally erected in cities. The influence of landscape gardening was important, for in designing the house with fore-court, formal garden, arcades, fountains and terraces, a special and finished character was given to the buildings themselves.

Many Gothic features, such as the tower, oriel, large mullioned "bay," and other windows (No. 251 B), gable, pierced parapet, and large chimney stacks were retained.

ENGLISH RENAISSANCE EXAMPLES. I.



The Elizabethan style represents the attempt to apply Italian architectural features to buildings, but it did not confine itself to architecture only, as it pervaded the whole of the ornamental arts in furniture, decoration, and fittings, and is in this respect a style complete in every aspect.

The alliance of James IV. of Scotland (d. 1513) with France caused French architectural features to be introduced, as at George Heriot's Hospital, Edinburgh (No. 151 J).

3. EXAMPLES.

SECULAR ARCHITECTURE.

As in other countries, the earliest examples of the style consist of small works such as tombs, monuments, doorways, and other features, the tomb of Henry VII. in Westminster Abbey, designed by Torrigiano, an Italian, in 1512, being generally regarded as one of the earliest examples.

Elizabethan Mansions.—As already mentioned (page 551), domestic architecture received more attention than any other class of building.

Two general types of house plan were in use at the beginning of the sixteenth century. Of these the smaller type consisted of a hall placed centrally, with kitchen and offices at one end and withdrawing and living rooms at the other, internal courts for lighting being sometimes employed, as at Chastleton in Oxfordshire. The larger type of house was evolved from the quadrangular plan of the Middle Ages (No. 131 B), which the later architects renounced by omitting the side forming the entrance, admitting sunlight and allowing free circulation of air about the building.

The E-shaped plan thus came into existence, as at *Hatfield House* (No. 131 D, E). The gatehouse on the centre of the side forming the entrance, which was typical of the Tudor period, as at *Oxburgh Hall* (No. 131 B), became a detached building, as at *Burton Agnes*, Yorkshire (A.D. 1610); *Cran'ourne*, Dorsetshire; *Stanway*, Gloucestershire, and elsewhere.

The H-shaped plan was evolved by extending the wings on both fronts, as at *Holland House, London* (No. 244 A, B).

Other fanciful plans showing extreme originality were erected, as *Longford Castle*, a triangular house attributed to John Thorpe (No. 131 F).

The following features occur in the principal examples :—

- i. The *great hall*, retained from the mediæval period (No. 241), was lined to a height of 8 or 10 feet with oak panelling, while above were arranged the trophies of the chase, armour, portraits of ancestors, family relics and heirlooms.

ENGLISH RENAISSANCE EXAMPLES. II.

CASTLE ASHBY.
OLD PORTION
BUILT AD 1595 &
OLD CHURCH
THE SOUTH ON
SOUTH FRONT
ADDED AD 1624
BY INIGO JONES

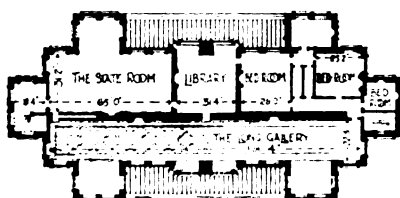


CASTLE ASHBY, NORTHAMPTONSHIRE. SOUTH ELEVATION.



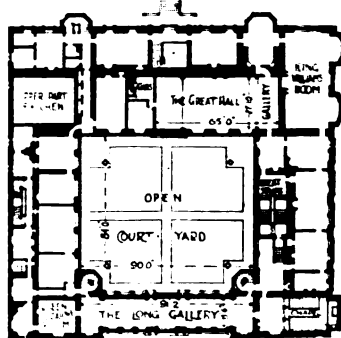
HARDWICKE HALL, DERBYSHIRE : THE ELEVATION

HARDWICKE HALL, BUILT IN AD 1576-1597 BY ELIZABETH COUNTESS OF SHREWSBURY FOR THE INGLANDS. IT IS AN EXAMPLE OF A LARGE SYMMETRICAL HOUSE OF THE PERIOD. ESPECIALLY NOTABLE FOR THE ABUNDANCE OF WINDOWS. HARDWICKE HALL HAS MORE GLASS THAN WALLS, WHICH IN MANY INSTANCES ARE CROSSED BY FLIGHTS. IT POSSESSES A FORMAL GARDEN WITH ENCLOSING WALLS AND GATE HOUSES CROWNED WITH RECKED PARAPETS.



HARDWICKE HALL
THE PLAN

SCALE FOR PLANS
0 10 20 30 40 50



CASTLE ASHBY
THE PLAN

SCALE FOR ELEVATIONS
0 10 20 30 40 50

At one end of the hall, by the entrance, is the carved oak screen, over which is the minstrels' gallery, while at the other end is the raised dais with tall bay-window, the sill of which is almost at the floor level. The hall fireplace was much elaborated (No. 250 K), and richly carved with the coat-of-arms of the owner, and the roof (No. 113) either with the timbers showing or formed with plaster panels (No. 241), was elaborately ornamented. The hall in the later period became of less importance as a living room, and was used more as a means of communication.

ii. The *broad staircase* of oak (Nos. 242 and 244 E) is a special feature, with its heavily-carved newels, pierced balustrading, and rich carving. It was generally placed in connection with the hall, and gives to the interior an air of spaciousness and dignity, its importance being due to the fact that the chief living rooms were often placed on the first floor and therefore demanded an important means of approach.

iii. The *long gallery* on the upper floor (Nos. 131 E and 245 C) often extends the whole length of the house, the proportions varying considerably from the hall in being comparatively low and narrow in proportion to the length. There is no feature of an old English mansion more characteristic than these galleries. It served as a means of communication between the wings of the house, the hall being often two stories in height. The length is frequently relieved by room-like projecting bays—those at Haddon Hall being about 15 feet by 12 feet, with stone-mullioned windows, glazed with leaded panes (No. 243). The walls have usually oak panelling the full height, the ceiling being richly modelled in plaster.

The term "picture gallery" is supposed to be derived from these apartments, and below are dimensions of important galleries, some of which belong to the Jacobean period.

Aston Hall (A.D. 1618-35) is 136 feet by 18 feet and 16 feet high.

Montacute House (A.D. 1580) is 170 feet long by 20 feet 6 inches wide.

Hardwick Hall (A.D. 1576-1597) (No. 245 C) is 166 feet long, 22 feet 5 inches wide and 26 feet high.

Charlton House (Wilts) (A.D. 1607) is 130 feet by 22 feet wide.

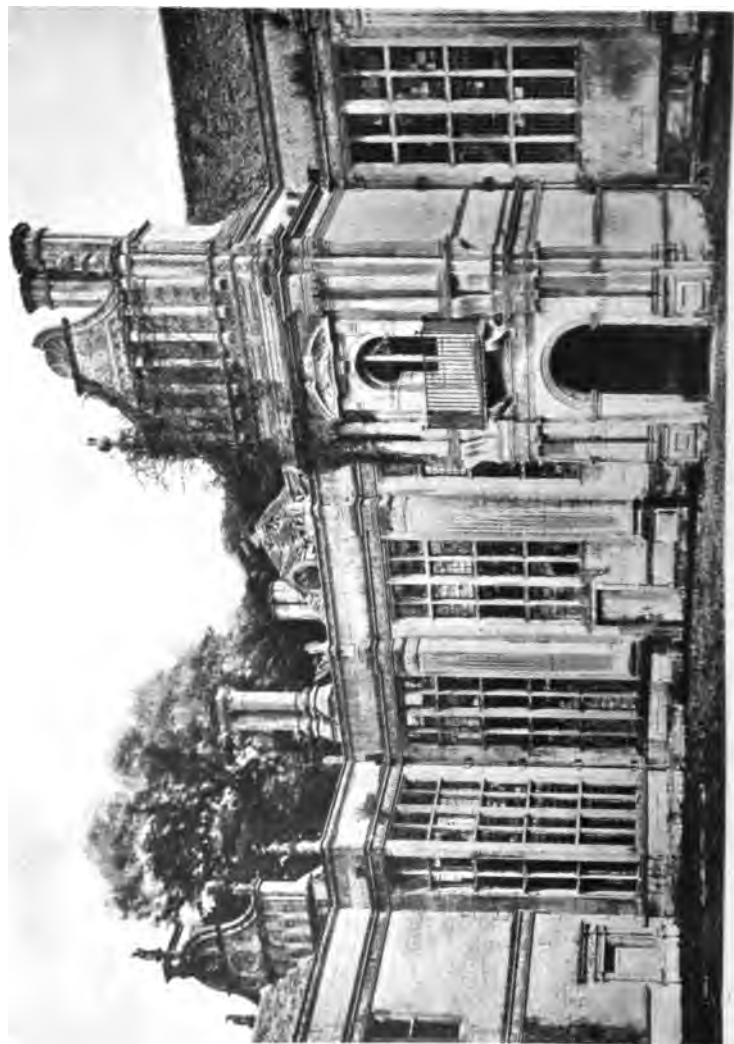
Haddon Hall (A.D. 1589) (No. 243) is 109 feet by 18 feet wide.

Moreton Hall (A.D. 1559) is 75 feet by 12 feet 6 inches wide.

iv. The *withdrawing room*, or "solar" of Gothic times, a *chapel* (sometimes), and the *bedrooms*, were other apartments, the latter increasing considerably in number and importance during this period.

An example of an apartment treated with panelling its whole height and with elaborate carved chimneypiece is shown in No. 244 D, from Stockton House, Wiltshire.

ENGLISH RENAISSANCE.



EXAMPLES OF SOME FAMOUS ELIZABETHAN MANSIONS.

<i>Name.</i>	<i>Date.</i>	<i>Architect.</i>
Charlecote, Warwickshire.	A.D. 1558.	
Kirby, Northants (No. 246).	A.D. 1570-1575.	John Thorpe (?).
Knole, Kent.	A.D. 1570.	
Penshurst, Kent (No. 132).	A.D. 1570-1585.	
Burghley, Northants.	A.D. 1575-1589.	John Thorpe.
Longleat, Wilts.	A.D. 1567.	John of Padua (?).
Montacute House, Somerset.	A.D. 1580-1601.	
Wollaton, Notts.	A.D. 1580.	R. Smithson.
Longford Castle, Wilts. (later façade).	A.D. 1580	John Thorpe.
Westwood, Worcester.	A.D. 1590.	

Longford Castle was originally triangular in plan (No. 131 F), with circular towers at each angle, and central open triangular courtyard. It was added to in the eighteenth century, and now forms an irregular pentagon on plan.

Moreton Hall, Cheshire (A.D. 1550-1559) (No. 247), is an example of many of the timbered houses, erected in the period, for which Cheshire and Shropshire are specially famous.

Elizabethan Colleges.—Many of the colleges at Oxford and Cambridge (*cf.* list, page 324) were erected during this period, and these buildings, situated within the seats of revived learning, naturally gave a great impetus to the new style, as object lessons to the rising generation.

CAMBRIDGE.

<i>Name.</i>	<i>Date.</i>	<i>Architect.</i>
The Gate of Honour, Caius College.	A.D. 1565-1574.	Theodore Haveus of Cleves (?).
Emmanuel College.	A.D. 1584.	
Sidney Sussex College (Court).	A.D. 1595.	Ralph Simons.
The Quadrangle, Clare College.	A.D. 1634.	Westley.
S. John's College (Court).		Ralph Simons.
Nevill Court, Trinity College.	A.D. 1593-1615.	Ralph Simons.

OXFORD.

Jesus College.	A.D. 1571.	
Gateway of the Schools (No. 248), with superimposed orders.	A.D. 1612.	Thomas Holt.
Merton College (Library).	A.D. 1600-1624.	Thomas Holt.
Wadham College.	A.D. 1612.	Thomas Holt.
Oriel and Jesus Colleges (portions of) and others.	A.D. 1612.	Thomas Holt.
Pembroke College.	A.D. 1624.	

ENGLISH RENAISSANCE.



247.

LITTLE MORETON HALL, CHESHIRE.

ENGLISH RENAISSANCE.



248. THE TOWER OF THE OLD SCHOOLS (NOW
THE BODLEIAN LIBRARY), OXFORD.

ENGLISH RENAISSANCE.



249.

HATFIELD HOUSE,
Bucks. 1590.

Elizabethan Town Houses.—Many interesting specimens of these exist, and among them are several houses of half-timber construction, as, for example, in London, Staple Inn, Holborn, the Hall of Charterhouse, Sir Paul Pindar's House, Bishopsgate (now in the Victoria and Albert Museum), and many examples in Chester, and other of the country towns throughout England.

4. COMPARATIVE (see page 562).

5. REFERENCE BOOKS (see page 565).

THE JACOBEOAN STYLE.

JAMES I. (A.D. 1603-1625).

1. INFLUENCES (see page 545).

2. ARCHITECTURAL CHARACTER.

The Jacobean style was a development of the Elizabethan, gradually diverging from Gothic picturesqueness as classic literature and models became better known, and the use of the columns with their entablatures became more general. The celebrated architect, John Thorpe, erected several of the mansions of this epoch, and his book of "compositions," preserved in Sir John Soane's Museum, London, is well worthy of study.

The buildings of this style were most suitable to the wants of the people in whose era they were erected. Some of the detail and ornamentation may be questionable, but they were at least the outcome of the social conditions of that age, and an examination of the mansions erected during the Elizabethan and Jacobean periods, most of which are easily accessible, will give as much if not more pleasure than the study of the buildings of any other period of Architecture in England. Jacobean furniture design continued on the same lines as the architecture.

3. EXAMPLES.

EXAMPLES OF SOME FAMOUS JACOBEOAN MANSIONS.

<i>Name.</i>	<i>Date.</i>	<i>Architect.</i>
Holland House, Kensington (No. 244).	A.D. 1607.	John Thorpe.
Charlton House, Wilts.	A.D. 1607.	
Bramshill, Hants (No. 250).	A.D. 1607-1612.	
Hatfield House, Herts (Nos. 131 D, E, 241 and 249).	A.D. 1611.	

<i>Name.</i>	<i>Date.</i>	<i>Architect.</i>
Cranbourne Manor House Dorsetshire.	A.D. 1612.	
Audley End, Essex.	A.D. 1603-1616.	Bernard Jansen.
Aston Hall, Warwickshire.	A.D. 1618-1635.	
Loseley Park, near Guild- ford.		
Bolsover Castle, Derbyshire.	A.D. 1613.	H. Smithson.
Blickling Hall, Norfolk	A.D. 1620.	
1. (Nos. 244, 250 D, K).		

4. COMPARATIVE.

THE ELIZABETHAN AND JACOBEOAN STYLES.

A. Plans.—These are often E or H-shaped (No. 244 B), the entrance being in the middle of the letter, and the two ends forming wings, as at Bramshill, Hardwick (No. 245 C), Longford, Hatfield (No. 131 D, E), Longleat, Burghley, Loseley, and Audley End, while many are irregular in plan, as Knole, Penshurst (No. 132 F), and Haddon (ball-room wing), such grouping being often brought about through the work being an addition to a previous Gothic house.

Characteristic features are :—The great hall, the broad staircase (Nos. 242, 244 E), the long gallery, and very often a chapel (No. 245 D). Broad terraces, with balustrades, raised above the garden level (No. 244 A, B), and wide flights of steps, are charming features in the style. Gardens were often laid out in a formal manner, as at Montacute, Hatfield and elsewhere, with yews, box, and other trees cut in fantastic patterns.

B. Walls.—Elevations have the character of picturesqueness, the Classic orders being used in a very free manner, often placed one above the other in the façades, as at Hatfield House (No. 249), the Gateway of the Schools at Oxford (No. 248), Kirby Hall (No. 246), and Holland House (No. 244).

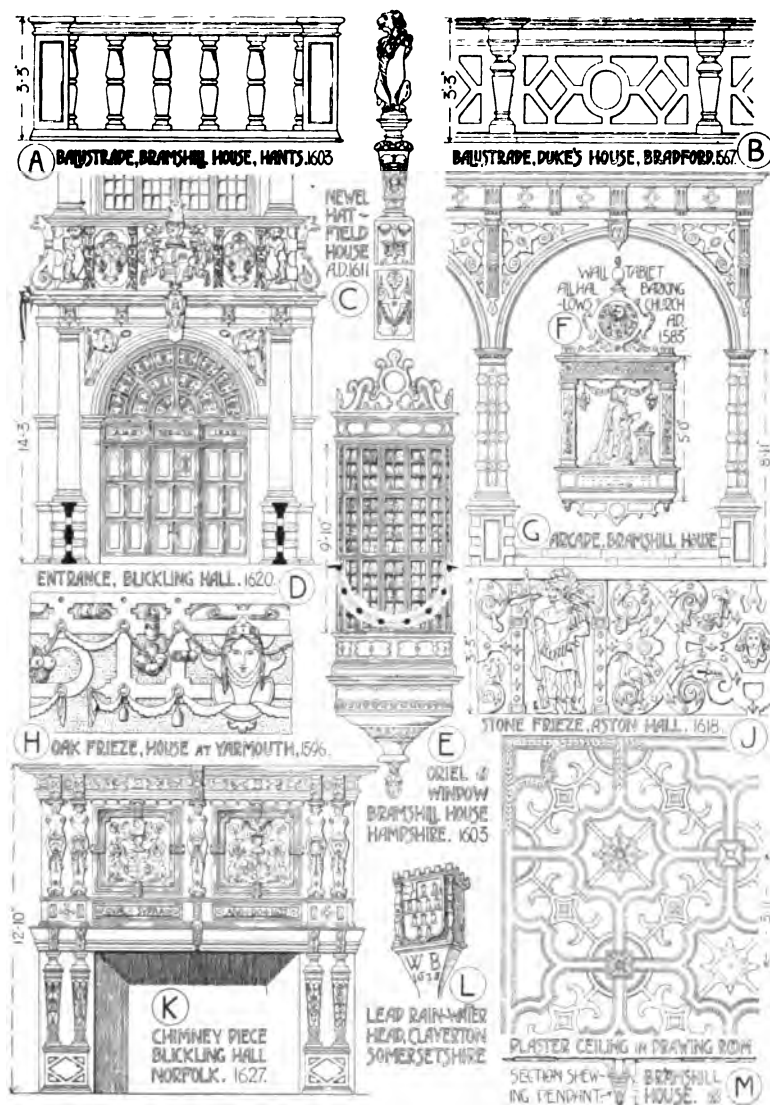
The gables are often of scroll-work, following in a general way the slope of the roof (Nos. 244 and 246).

The chimney stacks are special and characteristic features, being often treated in a prominent manner with orders, as at Hatfield and Kirby (Nos. 249 and 246); but sometimes they are of cut brickwork, the shafts being carried up boldly, so that they play an important part in the composition and outline of the house.

Parapets are pierced with various characteristic designs (Nos. 249 and 250 A, B), the baluster being much employed.

C. Openings.—Bay windows were largely used, as at Haddon (No. 243), Longleat, Holland House (No. 244), and Kirby Hall (No. 246), and form important features of the style.

ENGLISH RENAISSANCE ORNAMENT. I.



Large heavily-mullioned windows (Nos. 241, 243, 246 and 247), filled in with leaded glass, and crossed by horizontal transoms, are special features adopted from the late Gothic period, and oriel windows are common, as at Bramshill (No. 250 E).

Dormers were largely used, and turrets were in common use (Nos. 244 A and 248).

Arcades were often introduced, as at Hatfield, Bramshill, and elsewhere, (Nos. 244, 249 and 250 G).

Doorways are often elaborate in design, as in Nos. 246, 248, 249 and 250 D.

"Through this wide opening gate
None come too early, none return too late."

D. Roofs.—High, flat, or low roofs with balustrades, occur both separately and in the same design (No. 244 A). Lead and tiles were both used, and also stone slabs in certain districts. The balustrade, arcaded, pierced, or battlemented, is a constant feature (Nos. 244 A, 249 and 250).

E. Columns.—The orders were employed rarely with purity, a characteristic treatment being the reduction downwards, more especially in pilasters, accompanied by bulbous swellings (No. 250 K). Square columns were used, banded with strap ornamentation (No. 250 G), and pilasters were similarly treated or panelled. At Longleat, the most Italian-like example, the topmost order is the smallest, corresponding to the comparative unimportance of the upper rooms. Bramshill has a façade-centre which is perhaps the most licentious specimen of the style. Arcades were much employed, especially in the form of recessed loggie, as at Bramshill (No. 250 G), and Hatfield (No. 249).

F. Mouldings.—These are local and coarse in many instances, but founded on Classic originals. A typical cornice consists of a large cyma and small ogee moulding above a corona of little depth, and the use of convex mouldings, often banded or carved at intervals. Plaster work seems to have influenced in many ways the sections employed (No. 250 M).

G. Ornament (No. 250).—"Strap" ornamentation was formed by raised bands, of about the width and thickness of a leather strap, interlaced in grotesque patterns, and attached as if by nails or rivets, as in the ceilings (No. 250 H, J, M). It is considered by some to have been derived from the East, through France and Italy, in imitation of the damascened work which was at that period so common. This type of detail is also found in pilasters, as at Hatfield (No. 249), and on piers and in spandrels, as at Bramshill (No. 250 G).

Grotesquely carved figures as terminals occur (No. 250 C), and in carving generally, ribbons, scrolls, and festoons were preferred to Gothic foliage types.

Prismatic rustication, or the projection of blocks of stone of prismatic form (No. 250 G), occurs in pilasters and pedestals, and in later times colored stones were inserted in their stead.

Plaster (Nos. 242, 243 and 250 M) was used for ceilings with great skill in design and adaptability to the material, and broad friezes were sometimes modelled with much quaintness and grotesque feeling, as at Hardwick.

Tapestries continued to be used for walls, color decoration making little or no progress.

The screens, mantelpieces, entrance porches, monuments and tombs (No. 250 F), such as the monuments to Elizabeth (A.D. 1604) and Mary Queen of Scots in Westminster Abbey, and the tomb of Lord Burghley (No. 251 E), are very numerous and characteristic, a large number being found in churches throughout the country, and many being richly colored. The chapel screen from the Charterhouse, London (No. 251 C); the doorway in Broughton Castle (No. 251 A); the bookcase from Pembroke College, Cambridge (No. 251 D); the throne and stalls from the Convocation Room, Oxford (No. 251 F); the pulpit from North Cray Church, Kent (No. 251 G); the cistern now in the Victoria and Albert Museum (No. 251 H), and the tablet from Peterhouse College Chapel, Cambridge (No. 251 J), will indicate to the reader the manner in which Renaissance features were applied to the arts and crafts connected with architecture.

5. REFERENCE BOOKS.

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Davie (W. G.).—"Old Cottages and Farmhouses in Kent and Sussex." 4to. 1900.

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Gotch (J. A.).—"Architecture of the Renaissance in England." 2 vols., folio. 1891-1894.

Gotch (J. A.).—"Early Renaissance Architecture in England." 1901.

Habershon (M.).—"The Ancient Half-Timbered Houses of England." Folio. 1836.

Harrison (F.).—"Annals of an Old Manor House" (Sutton Place, Guildford). 4to. 1893.

Nash (J.).—"Mansions of England in the Olden Time." 1839-1849.

Parkinson and Ould.—"Old Cottages, Farmhouses, and other Half-timber Buildings of Shropshire, Herefordshire, and Cheshire." 4to. 1904.

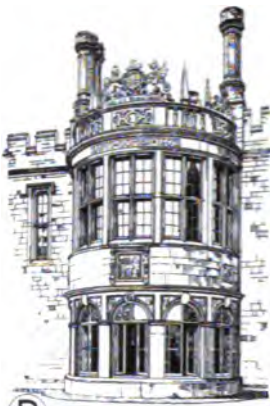
Richardson (C. J.).—"Studies from Old English Mansions." 1841-48.

Richardson.—"Observations on the Architecture of England during the Reigns of Queen Elizabeth and James I." 4to. 1837.

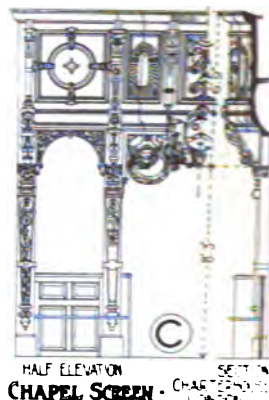
ENGLISH RENAISSANCE ORNAMENT II.



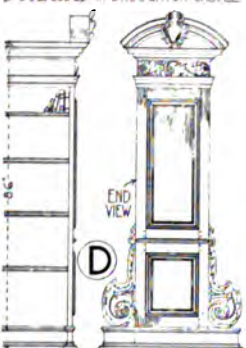
A DOORWAY IN BROUGHTON CASTLE.



B BAY WINDOW, HINCHBROOKE HALL.



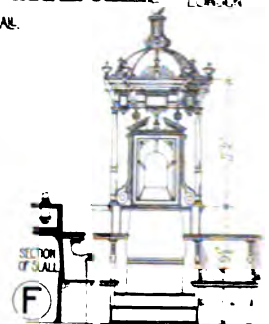
HALF ELEVATION
C CHAPEL SCREEN. CHARTERHOUSE, LONDON.



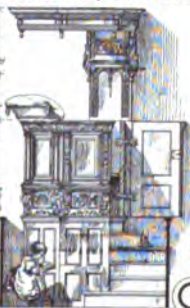
D BOOKCASE, PEMBROKE COLL. CAMBRIDGE.



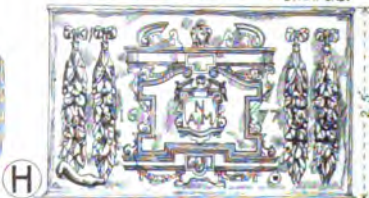
E TOMB OF LORD BURCHLEY, ST. MARTIN, STAMFORD.



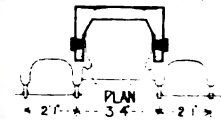
F SECTION OF STALL. CHOIR.



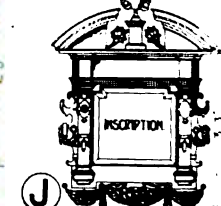
G PULPIT, NORTH CRAY CH. KENT.



H LEAD CISTERN, VICTORIA & ALBERT MUSEUM.



I PLAN. THRONE & STALLS, CONVOCATION ROOM, OXFORD.



J TABLET. PETERHOUSE, CAMBRIDGE.

REFERENCE BOOKS—Continued.

- Richardson.—“Architectural Remains of the Reigns of Elizabeth and James I.” Folio. 1840.
 Shaw (H.).—“Details of Elizabethan Architecture.” 4to. 1839.
 Tanner (H.).—“English Interior Woodwork of the XVI-XVIIIth Centuries.” Folio. 1902.
 Taylor (H.).—“Old Halls in Lancashire and Cheshire.” 4to. 1884.
 John Thorpe’s Original Drawings in the Soane Museum. A good selection of these are reproduced in Mr. Gotch’s text-book on “Early Renaissance Architecture.”
 Reed (J. B.).—“Sir Indar.”
 Scott (Sir Walter).—“Kenilworth.”
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 Shorthouse (J. H.).—“John Inglesant.”

} Historical Novels.

THE ANGLO-CLASSIC, OR SEVENTEENTH CENTURY STYLE,

Comprises the reigns of Charles I. (1625-49), the Commonwealth (1649-60), Charles II. (1660-85), James (1685-89), William and Mary (1689-1702).

1. INFLUENCES (see page 545).

2. ARCHITECTURAL CHARACTER.

The transitional Elizabethan and Jacobean styles at length gave way before the influence of Inigo Jones and Wren, who are considered the founders of the Anglo-Classic style.

3. EXAMPLES.

INIGO JONES (1573-1652).

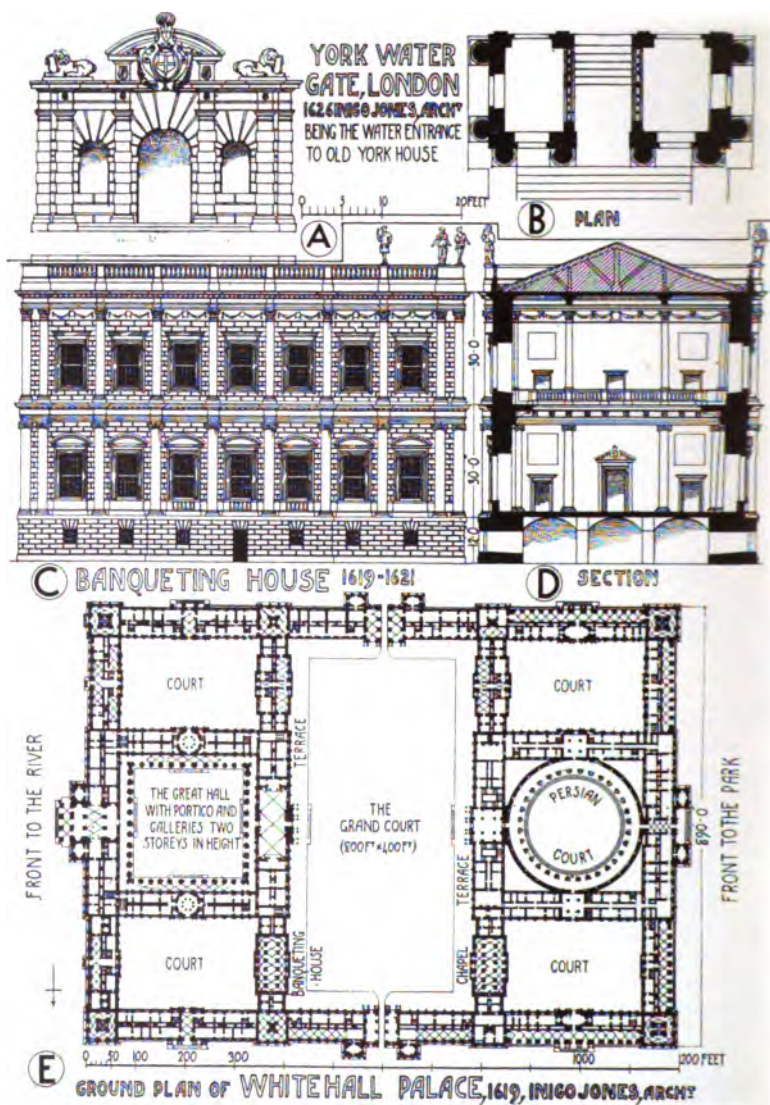
Long study in Italy, and especially at Vicenza, Palladio’s native town, influenced the work of Inigo Jones. He was invited to Copenhagen by the King of Denmark, but returned to England in 1604. He revisited Italy in 1612 for further study, and on his return introduced a purer Renaissance style, founded on Italian models and ornamentation. The Italian architect Palladio was Inigo Jones’s favourite master in design, his works being carefully studied by him, and thus Palladio had a great influence on English architecture.

The Commonwealth intervened, and checked the execution of many of Inigo Jones’s designs.

The following are among his principal Buildings:—

Chilham Castle, Kent (A.D. 1614-1616), is a transitional example of brick with stone dressings, E-shaped façade, with radiating side wings forming a horseshoe court at the back, and with a porch having the baluster-columns of the earlier periods.

ENGLISH RENAISSANCE EXAMPLES. III.



The **Banqueting House, Whitehall** (A.D. 1619-1621), is a part only of a Royal Palace, which was one of the grandest architectural conceptions of the Renaissance (No. 252). The greater part of the building was to have been of three stories, each 30 feet high, with a total height to the top of the parapet of 100 feet. The remainder, as curtain wings to the main blocks, and in design like the Banqueting House (No. 252 c), was to be 75 feet high, divided into two stories. The plan (No. 252 E) was arranged round courtyards, one of which was to be circular, and the great court would have vied with that of the Louvre (page 503). In this design, proportion, elegance, and purity of detail, are more happily combined than in any other Renaissance scheme of the kind.

S. Paul, Covent Garden (A.D. 1631-1638), is severe and imposing by reason of its simplicity and good proportions, but has been altered and rebuilt by subsequent architects. The arcades and buildings around the market were also designed by Inigo Jones.

Greenwich Hospital, the river façade of which was executed by John Webb, a pupil of Inigo Jones, has the two lower stories included under one huge Corinthian order. The hospital was afterwards added to by Sir Christopher Wren (page 576).

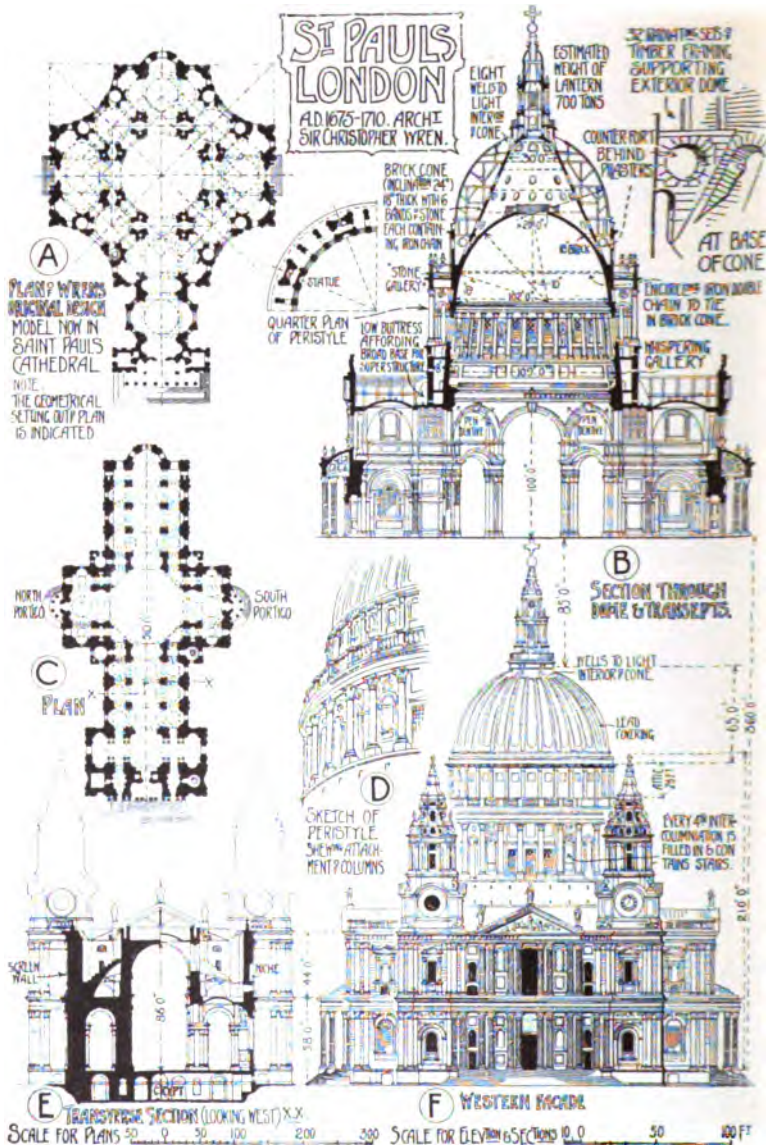
York Water Gate, London (A.D. 1626) (No. 252), executed by the master mason Nicholas Stone, formed the river entrance to Old York House, since destroyed. The gateway is now in the Embankment Gardens.

Houghton Hall, Beds (1616-1621); Raynham Hall, Norfolk (1630); Stoke Park, Northants (1630-1634); the King's (Queen's) House, Greenwich (1639) (No. 238 A); Wilton House, Wilts (additions) (1640-1648); Coleshill, Berks (1650); and Chevening House, Kent (No. 131 H, J), are examples of his country houses; and Lincoln's Inn Chapel (1617-1623); Houses in Lincoln's Inn Fields and Great Queen's Street (1620); the Barber Surgeons' Hall (1636-1637); and Ashburnham House, Westminster (1640), are examples of his town buildings.

SIR CHRISTOPHER WREN (1632-1723)

was a scholar and a mathematician, being Professor of Astronomy at Gresham College and at the University of Oxford, his early mathematical training fitting him for the constructive skill shown in his later works. As an architect, Wren lacked the more thorough technical education of Inigo Jones, and was not always able to clothe his constructive forms in equally appropriate detail, but his study of French architecture at Paris and elsewhere in France, was an important part of his education. The works on the Louvre were then in progress, and constituted a great

ENGLISH RENAISSANCE EXAMPLES. IV.



school of art, and, in consequence, Wren's work shows more French influence than that of Inigo Jones, which is pure Italian.

Palladio continued to be the inspirer of English work, as compared with Vignola, whom the French followed, but Wren, who never visited Italy, often gave a semi-French turn to his designs, more especially in the decorative detail, as may be seen on comparing his work with that of Inigo Jones.

Many of his designs, in which he was obliged to study economy, indicate, however, much thought, all his designs, as Opie said, being mixed "with brains," and indicating a careful study in the proportion of part to part.

Many of these, as S. Paul and the City churches, were executed in Portland stone, which by its good weathering properties adds to their dignity and importance; while in domestic work, he used red brick with stone dressings, as at Hampton Court, Marlborough House, and elsewhere.

His great opportunity was the destruction of London by the Great Fire in 1666, after which he devised a grand plan for the reconstruction, which was, however, abandoned for pecuniary and other reasons, but he was employed in a large number of churches, including S. Paul's Cathedral, and other buildings.

His principal **Ecclesiastical** works were as follows:—

S. Paul, London (1675-1710), which ranks amongst the finest Renaissance Cathedrals in Europe, was Wren's masterpiece. The first design, of which there is a fine model in the northern triforium of the Cathedral, was in plan a Greek cross (No. 253), with a projecting western vestibule; but the influence of the clergy, who desired a long nave and choir suitable for ritualistic purposes, finally caused the selection of the mediæval type of plan. This, as executed, consists of a great central space at the crossing, arranged somewhat similarly to Ely Cathedral, crowned by a dome, and having east and west a nave and choir in three bays with aisles, north and south transepts, and a projecting western vestibule with lateral chapels. The building has an internal length of 460 feet, a breadth including aisles of 100 feet, and an area of 60,000 square feet. An illustration showing its comparative size and disposition with S. Peter, Rome, the Pantheon, Paris, and Cologne Cathedral, is given (No. 213).

The internal piers (No. 253 B) are ornamented with pilasters of the Corinthian order, supporting an entablature and attic, above which are formed the flat saucer-like domes, 86 feet high. Light is admitted by means of windows in the clerestory, which are not visible from the exterior. The wall surfaces have recently been decorated with glass mosaic, under Sir William Richmond, which has given the color it was originally intended to have. The dome, as shown in No. 253 B, is of triple construction. It is carried on eight piers (*cf.* Dome of the Invalides,

ENGLISH RENAISSANCE.



254.

S. PAUL., LONDON.
West Front.

Paris, page 500), and is 109 feet at the base of the drum, diminishing to 102 feet at the top. The inner dome of brickwork, 18 inches thick, has its summit 281 feet high, and the intermediate conical dome also of brickwork 18 inches thick, supports the stone lantern, ball and cross, which latter has a height of 365 feet. The outer dome is formed of timber covered with lead, and rests on the intermediate dome (No. 253 B). Eight openings are formed in the summit for the admission of light to the inner domes.

The exterior is exceedingly effective, and is made to group well with the central dome. The façades have two orders totalling 108 feet in height, the lower Corinthian and the upper Composite, but as the aisles are only one story high, the upper story on the flanks is a screen wall introduced to give dignity, and to act as a counterweight to the flying buttresses concealed behind it, which receive the thrust of the nave vault. The western front, 180 feet wide, and approached by a broad flight of steps, is flanked by two finely proportioned towers, 215 feet high, having between them the double storied portico of coupled columns supporting a pediment in which there is a fine representation of the conversion of S. Paul.

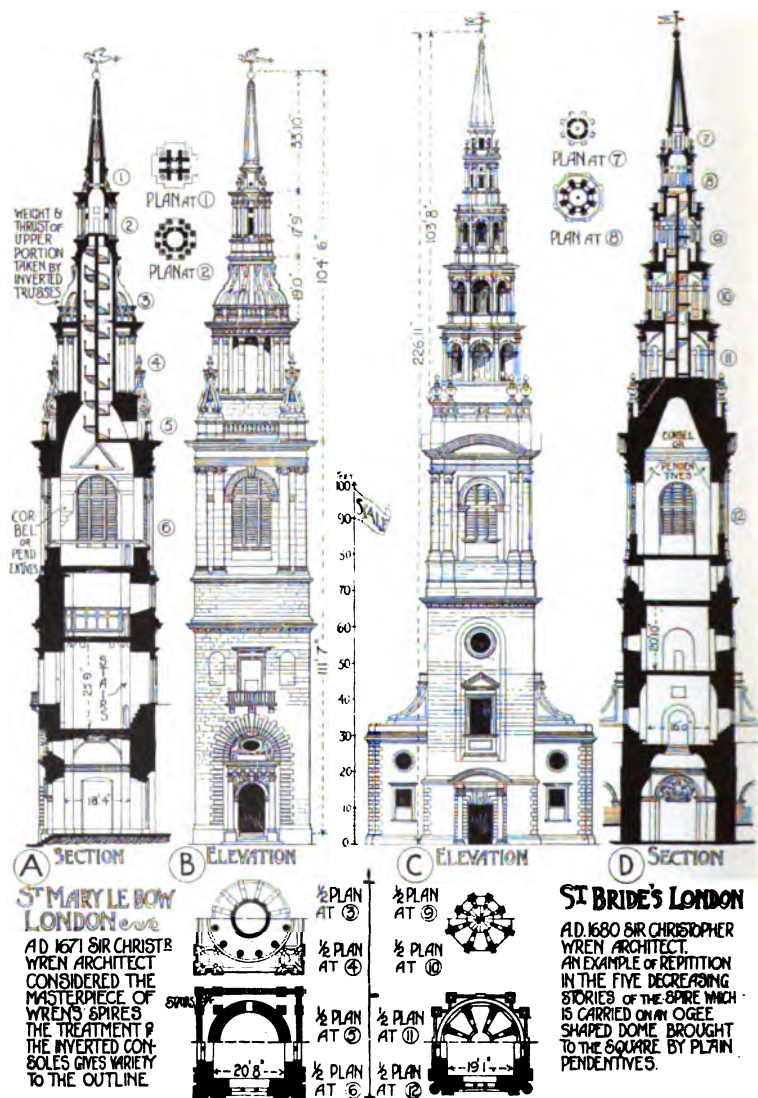
The dome externally is probably the finest example in Europe, the projecting masses of masonry at the meeting of nave and transepts expressing the support of the dome from the ground upwards. The colonnade to the drum is particularly effective, being formed of three-quarter columns attached to radiating buttress walls, having every fourth intercolumniation filled in solid, and thus giving an appearance of strength and solidity which is lacking in the Pantheon, Paris. Behind the balustrade, known as the "Stone Gallery," rises an attic above supporting the dome, which is crowned with lantern and cross.

The poetess Joanna Baillie has well described the majestic appearance of S. Paul on a foggy day :—

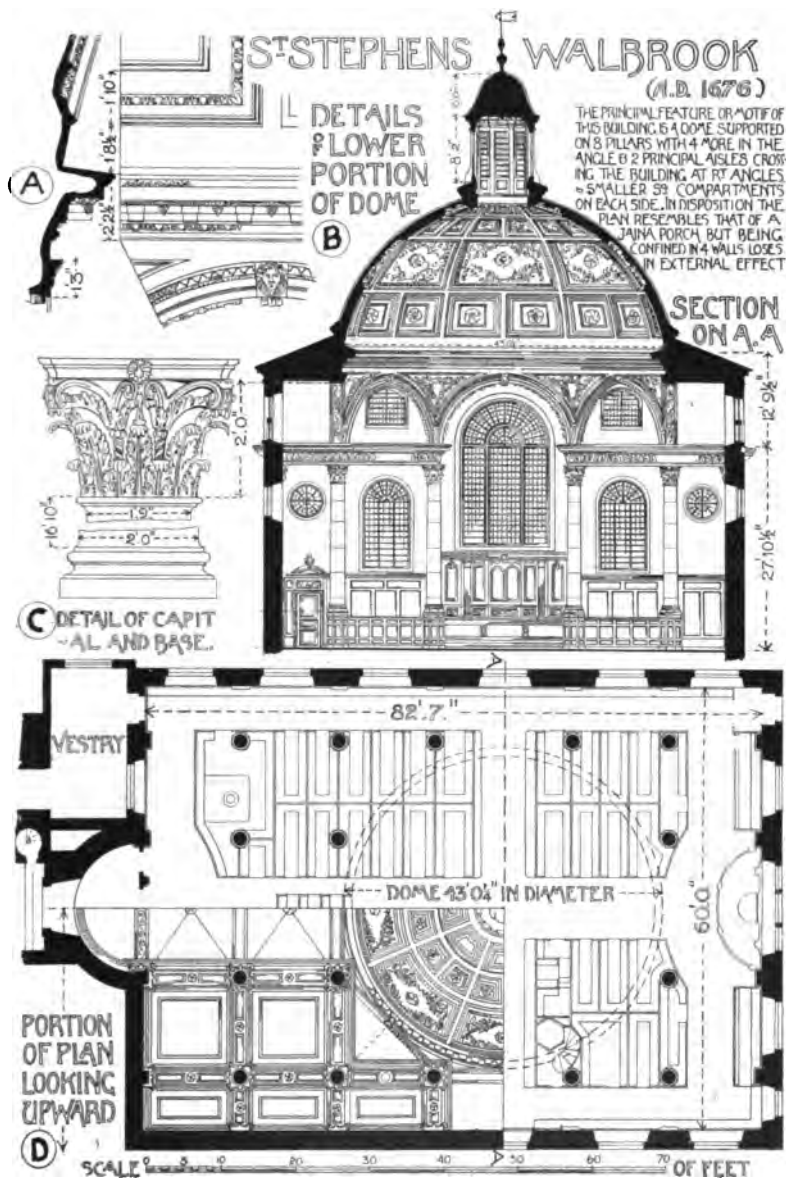
"Rear'd in the sky,
'Tis then St. Paul's arrests the wandering eye ;
The lower parts in swathing mists conceal'd
The higher through some half-spent shower reveal'd.
So far from earth removed, that well I trow,
Did not its form man's artful structure show,
It might some lofty Alpine peak be deem'd,
The eagle's haunt, with cave and crevice seam'd.
Stretch'd wide on either hand, a rugged screen,
In lurid dimness nearer streets are seen,
Like shoreward billows of a troubled sea
Arrested in their rage."

	<i>Time Building.</i>	<i>Architects.</i>	<i>Master Mason.</i>	<i>Bishops.</i>
S. Paul, London.	35 years.	One.	One.	One.
S. Peter, Rome.	100 years.	Six.	—	Twenty.

ENGLISH RENAISSANCE EXAMPLES. V.



ENGLISH RENAISSANCE EXAMPLES. VI.



Wren was also responsible for the erection of some fifty-three City churches in the Renaissance style between 1670-1711. These are models of simplicity and restraint, and are notable for skilful planning on awkward and confined sites, and general suitability for Protestant worship, in which a central preaching space is considered more important than the "long-drawn aisle" for processional purposes, characteristic of mediæval churches.

Among the more important of these are the following:—

S. Stephen, Walbrook (1672-1679) (No. 256), has original and ingenious planning, and is deservedly famous for the excellent effect produced by small means within a limited area, the sixteen columns, inclosed in a rectangle, carrying cross vaulting and a central cupola, the latter resting on eight of the columns.

Bow Church, Cheapside (1680), is the most successful of a type of Renaissance steeple (No. 255 A, B) of which Wren may be called the inventor, in which a square tower supports a pyramidal spire in receding stages clothed with classical details.

S. Bride, Fleet Street (1680) (Nos. 255 C, D, 257), is another example generally considered less successful because of the telescopic effect of similar stories, a fault which was avoided in Bow Church by the use of inverted consoles.

S. Martin, Ludgate, has a steeple simpler in design, but exceedingly picturesque in the group that it forms in conjunction with Wren's masterpiece, S. Paul's Cathedral.

S. Clement Danes (1684) and **S. James, Piccadilly** (No. 257), are successful though plain examples of his galleried interiors.

The **Western Towers of Westminster Abbey**; **S. Dunstan in the East** (1698); **S. Mary, Aldermary** (1711); **S. Michael, Cornhill** (1721), are examples of his Gothic treatment of spires.

Pembroke College Chapel, Cambridge (1663-1664) was one of his earliest works.

The **Secular works** of Wren were numerous:—

The **Sheldonian Theatre, Oxford** (1664), is an evidence of his scientific skill in the constructive carpentry of the roof, and in the splendid acoustic properties of the hall.

The **Inner Court, Trinity College, Oxford** (1665); the **Library of Trinity College, Cambridge** (1679); the **Library of Queen's College, Oxford** (1682); and the **School Room at Winchester** (1684), are other examples of his collegiate work.

The **Monument, London Bridge** (1671); the **Fountain Court and Garden Façade of Hampton Court Palace** (1690); the **Two Blocks of Greenwich Hospital** furthest from the river, combined in a group at once picturesque and stately; **Chelsea Hospital**, the **Royal Palace, Winchester**

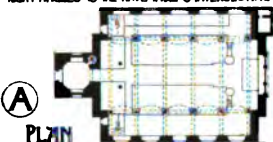
ENGLISH RENAISSANCE EXAMPLES. VII.

ST JAMES'S CHURCH PICCADILLY LONDON.

A.D. 1683. SIR CHRISTOPHER WREN ARCHT.
AISLES IN 2 STORIES THE GALLERY BEING SUPPORTED ON
A SQUARE PIER ON WHICH ARE PLACED SINGLE COLUMNS
THE AISLES ROOFED BY SEMICIRCULAR VAULTS AT
RIGHT ANGLES TO THE NAVE VAULT & INTERSECTING IT.

(A)

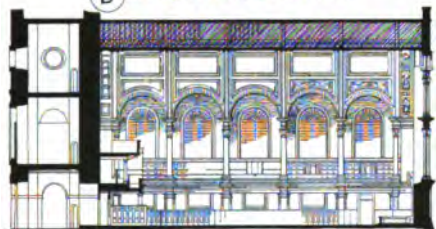
PLAN



(C) CROSS SECTION (LOOKING EAST)



(B) LONGITUDINAL ELEVATION.



(D) LONGITUDINAL SECTION

ST BRIDES CHURCH FLEET ST LONDON.

A.D. 1680-1690. SIR C. WREN ARCHT.
INTERIOR COUPLED COLUMNS SUPPORTING ROOF
HAVING PLASTER ATTACHED TO THEM CARRYING THE GALL-
ERIES THE COLUMNS HAVE PORTIONS OF ENTAB-
LATURE FROM WHICH SPRING THE NAVE ARCHES



(E) PLAN

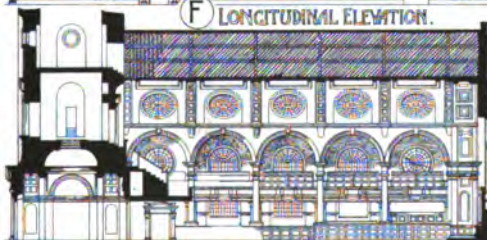


(G) CROSS SECTION (LOOKING EAST)

SCALE FOR PLANS 0 50 100 FT.



(F) LONGITUDINAL ELEVATION.



(H) LONGITUDINAL SECTION.

SCALE FOR ELEVATIONS 0 50 100 FT.

(1683), **Morden College, Blackheath, Marlborough House, Pall Mall** (1709), and the **Banqueting Hall** (Orangery) in Kensington Palace Gardens, are a few examples which show the large number of different classes of buildings upon which he was engaged, and their suitability to the several purposes for which they were designed.

The **Temple, London** (1674-1684) with its plain brickwork façades and interesting wooden doorways, is an example of his simpler style to which character is given, as in the principal entrance gateway to Fleet Street.

Temple Bar, London (1670), removed to Theobald's Park, Herts, is a pleasing example of a smaller type of monumental work.

4. COMPARATIVE (see page 585).

5. REFERENCE BOOKS (see page 588).

THE "QUEEN ANNE," "GEORGIAN," "PEDIMENT AND PORTICO," OR EIGHTEENTH CENTURY STYLE,

Comprises the reigns of Anne (1702-14), George I. (1714-27), George II. (1727-60), George III. (1760-1820).

1. INFLUENCES (see page 545).

2. ARCHITECTURAL CHARACTER.

In the latter part of the seventeenth, and during the eighteenth century, the plan of the smaller type of house was usually a square, as at the King's (Queen's) House, Greenwich (No. 238 A), or an oblong, as at Chevening (No. 131 H, J), both already mentioned (page 569). In the square type the centre was frequently occupied by the top-lit saloon, two stories in height, as at Greenwich. In the oblong type, the house was usually roughly divided into three, the centre third being occupied by the hall, saloon and staircases. The basement in both types contained the kitchen, storerooms and cellars.

In the larger type of house, the ground floor was frequently treated as a basement, the first floor being the principal one, reached by an external flight of steps as at Rainham in Norfolk, Castle Howard (No. 258 A, B, C), and Kedleston (No. 258 D, E, F), and this led to the internal staircase being reduced in importance. The hall, saloon, and reception-rooms, to which everything was sacrificed, were placed in a central block, either square or oblong on plan (No. 258 C, F) superseding the E and H-shaped Jacobean plans. On either side symmetrical detached wings were added, as at Holkham Hall (No. 131 K), or connecting

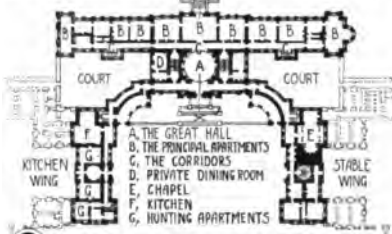
ENGLISH RENAISSANCE EXAMPLES. VIII.



A CASTLE HOWARD, GARDEN ELEVATION (1714) SIR JOHN VANBRUGH ARCHT.



B SECTION XX



C PLAN OF CENTRAL PORTION



D KEDLESTONE HALL, SOUTH ELEVATION (1761) ROBERT ADAM ARCHT.

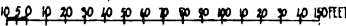


E SECTION YY

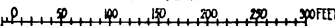


F PLAN

SCALE FOR ELEVATIONS



SCALE FOR PLANS



portions of quadrant form, often treated as colonnades, as at Stoke Park, Northants (No. 131 G), Castle Howard, Yorkshire (No. 258 C). Blenheim, Oxfordshire (No. 238 F), Latham Hall, Lancashire. Moor Park, Herts, and Kedleston, Derbyshire (No. 258 F).

The Jacobean gallery survived in a modified form, as at Castle Howard (No. 258), Chatsworth, and Holkham (No. 131 K), and many other examples.

The publication, by the Earl of Burlington, of the designs of Inigo Jones, and of the drawings of the "Antiquities of Rome," by Palladio, in the early part of the century, are thus referred to by Pope in one of his epistles to the Earl of Burlington.

"You show us, Rome was glorious, not profuse,
And pompous buildings once were things of use.
Yet shall, my lord, your just, your noble rules,
Fill half the land with imitating fools ;
Who random drawings from your sheets shall take,
And of one beauty many blunders make ;
Load some vain church with old theatric state,
Turn arcs of triumph to a garden gate ;

* * * * *

Shall call the winds through long arcades to roar,
Proud to catch cold at a Venetian door."

This passage suggests what really did happen, and well characterizes the style of architecture. There were many famous architects of this period and as they were contemporaries, practising at the same time, their names and principal works are given.

The design of the buildings, not excepting the domestic class, was influenced by a passion for symmetry and grandeur, which almost entirely put aside as unworthy of consideration the comfort and convenience of the people who had to occupy them, a point remarked upon by Pope :—

"'tis very fine,
But where d'ye sleep, or where d'ye dine ?
I find by all you have been telling
That 'tis a house, but not a dwelling."

Or the remark of Lord Chesterfield to General Wade may be quoted, viz., that the latter had better take a lodging opposite his Palladian mansion (by Lord Burlington), if he liked nothing but the front.

The fact must not be overlooked, however, that at this time there grew up a national style, most of the less important houses for the middle class people being erected in the useful and modest *Queen Anne* and *Georgian* type of square house. Moreover, corridor planning did much for convenience and comfort in domestic architecture, and the fast developing trade of the joiner admitted of the elaboration of internal fittings.

3. EXAMPLES.

Nicholas Hawksmoor (1666-1763) was a pupil of Wren and followed him in his practice. Principal works:—S. George, Bloomsbury; S. Mary Woolnoth; S. George in the East; S. Anne, Limehouse; Christ Church, Spitalfields—all in London. He also assisted Sir John Vanbrugh at Castle Howard and Blenheim. His works were much influenced both by Wren and Vanbrugh, but ideas of some originality and grandeur were too often marred by eccentricities of treatment, and his architectural detail, as with other of Wren's pupils, was often badly designed.

Hawksmoor held several Government appointments, notably clerk of the works at Kensington Palace and Greenwich Hospital.

James Gibbs (1683-1754). Principal works were:—S. Martin in the Fields; S. Mary-le-Strand (A.D. 1714) (the tower is an oblong on plan), the steeple, S. Clement Danes Church; and Bartholomew's Hospital—all in London; the Radcliffe Library, Oxford, and the Senate House, Cambridge. He published a book of his own designs, in which the above works, with others, may be found.

William Talman (d. 1715), Chatsworth, Derbyshire (A.D. 1681), Dymham House, Gloucestershire, and works at Hampton Court.

Kent (1684-1748), in collaboration with the Earl of Burlington, erected the Horse Guards, London, notable for skilful grouping; the Treasury Buildings, Horse Guards Parade; Devonshire House Piccadilly, and Holkham Hall, Norfolk (No. 131 K).

The Earl of Burlington (A.D. 1695-1753), an amateur architect and patron of Kent and other artists. He designed the Palladian Villa at Chiswick—an English

Sir John Vanbrugh (1666-1726). Principal works:—Blenheim Palace (No. 238 F), the most important mansion of the period erected in England, is both picturesque and stately, and it is the commencement of the Palladian type of house, in which a striving after symmetry and monumental grandeur, at the expense of usefulness, led to the debasement of architecture. In the plan of Blenheim there is an extensive use of corridors as communicating passages, being a great development in planning, and a step towards the privacy which is now insisted upon. Castle Howard, Yorkshire (A.D. 1714) (No. 258), is an example of a ponderous character. King's Weston, Gloucestershire (A.D. 1713), and Seaton Delaval, Northumberland, are other works.

Thomas Archer (d. 1743) was a pupil of Sir John Vanbrugh. He erected S. John, Westminster, in the Rococo style, and S. Philip, Birmingham, in the somewhat heavy style of his master.

Colin Campbell (d. 1734) was the compiler of the "Vitruvius Britannicus," which contains plans and elevations of all the country houses of any importance erected during the century. His best known works were the front and gateway of old Burlington House (1717), Houghton, Norfolk (1723), and Wanstead, Essex (1720).

Isaac Ware (d. 1766). He erected Chesterfield House, Mayfair, and was the author of "A Complete Body of Architecture."

Sir Robert Taylor (1714-1788). He was the architect of the Pelican Fire Office, Lombard Street; and Ely House, Dover Street.

George Dance, senior (d. 1768), City architect of London, erected the Mansion House, London. His better known son was the designer of Newgate, the most appropriate of

translation of the Villa Capra, near Vicenza (page 488).

The Brothers Adam. Robert Adam (1728-1792) published "Dionysian's Palace at Spalato," in the year 1760, a book which influenced architectural design. Other designs are two sides of Fitzroy Square; the Adelphi Terrace (named after the four brothers); the screen in front of the Admiralty, Whitehall (1760); Caen Wood, Hampstead; Kedleston Hall, Derbyshire (No. 258); Stratford Place, London; Lansdowne House, London (1765); Stowe House, Buckingham; Sion House, near London (A.D. 1761-1762); Kenwood House, Hampstead (A.D. 1764), and many private houses in London, and the College and Register Office, Edinburgh.

The brothers Adam were the authors of a marked style of interior decoration that is known by their name. Furniture and decoration were treated together with the design of the rooms themselves with refined and elegant details. Adams' chimney-pieces are specially characteristic.

Henry Holland (1740-1806) erected Claremont House, Esher; Carlton House, on the site now occupied by Waterloo Place (the Corinthian columns being employed at the National Gallery); Brooks's Club, London, and the vestibule to Dover House, Whitehall, which is a charming and refined piece of work.

James Wyatt (1748-1813) studied in Rome. The Pantheon (1772) in Oxford Street, and White's Club, are works in London; Lee Priory, Kent; Castle Coote, Ireland; Bowden Park, Wiltshire; and Fonthill Abbey (1795-1822). He undertook the restoration of many of the cathedrals and important churches in England and Wales, but the small knowledge of the true spirit of Gothic archi-

prison designs and lately demolished; also of S. Luke's Hospital.

John Wood (1704-1754) of Bath, in conjunction with Dawkins, published the "Illustrations of Baalbec and Palmyra" in 1750, creating a taste for Roman magnificence. His best known work is Prior Park, Bath (A.D. 1735-1743), and various other works in that city.

Sir William Chambers (1726-1796), first Treasurer of the Royal Academy, wrote the "Treatise on the Decorative Part of Civil Architecture." He carried on the traditions of the Anglo-Palladian school, objecting strongly to the Greek revival then commencing. The proportions he adopted for the Classic orders are given in Nos. 261, 262. He travelled largely in Europe and the East. His great work is Somerset House, commenced in 1776 (No. 259), which is grand, dignified, and simple in its parts. A single order runs through two stories, and rustication is largely employed. The character of his work in general is correct and refined, but lacking somewhat in originality and strength.

James Gandon (1742-1823), a pupil of Sir W. Chambers, erected the Custom House and the Law Courts at Dublin.

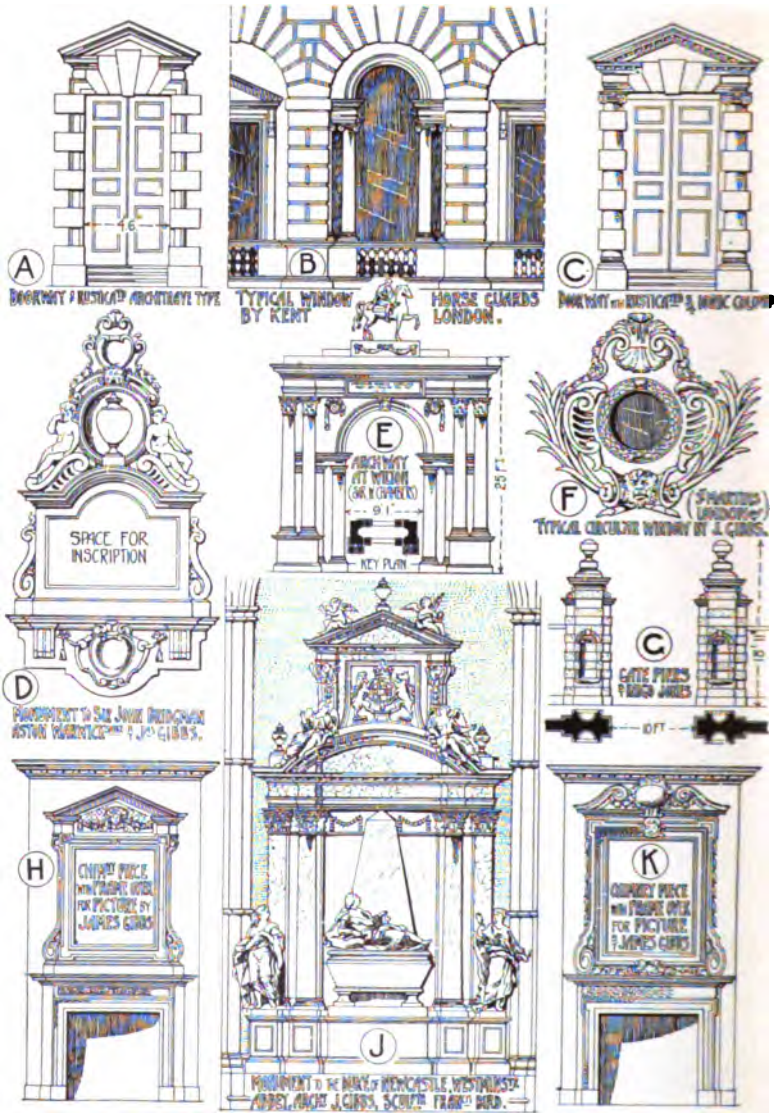
Sir John Soane (1750-1837), a pupil of George Dance, junior, studied in Italy (1788). He was appointed architect to the Bank of England. This important building occupied many years of his life, and constitutes his masterpiece, the Corinthian order of the Temple at Tivoli being closely followed. Comparing this design with Newgate, it fails in the quality of apparent suitability of purpose. His early designs are Palladian, and his later ones are those of an original mind, but he was unable to clothe them with suitable details, and there is a consequent taint of eccentricity. The Dulwich picture gallery is by

ENGLISH RENAISSANCE.



SOMERSET HOUSE, LONDON.
From the Embankment.

ENGLISH RENAISSANCE ORNAMENT. III.



ture then existing is responsible for his inability to effect these with success. Pugin has starred him with the affix "the destroyer."

him. Sir John Soane's Museum, in Lincoln's Inn Fields, formerly his private house, contains interesting drawings and models.

4. COMPARATIVE.

ANGLO-CLASSIC, QUEEN ANNE AND GEORGIAN STYLES.

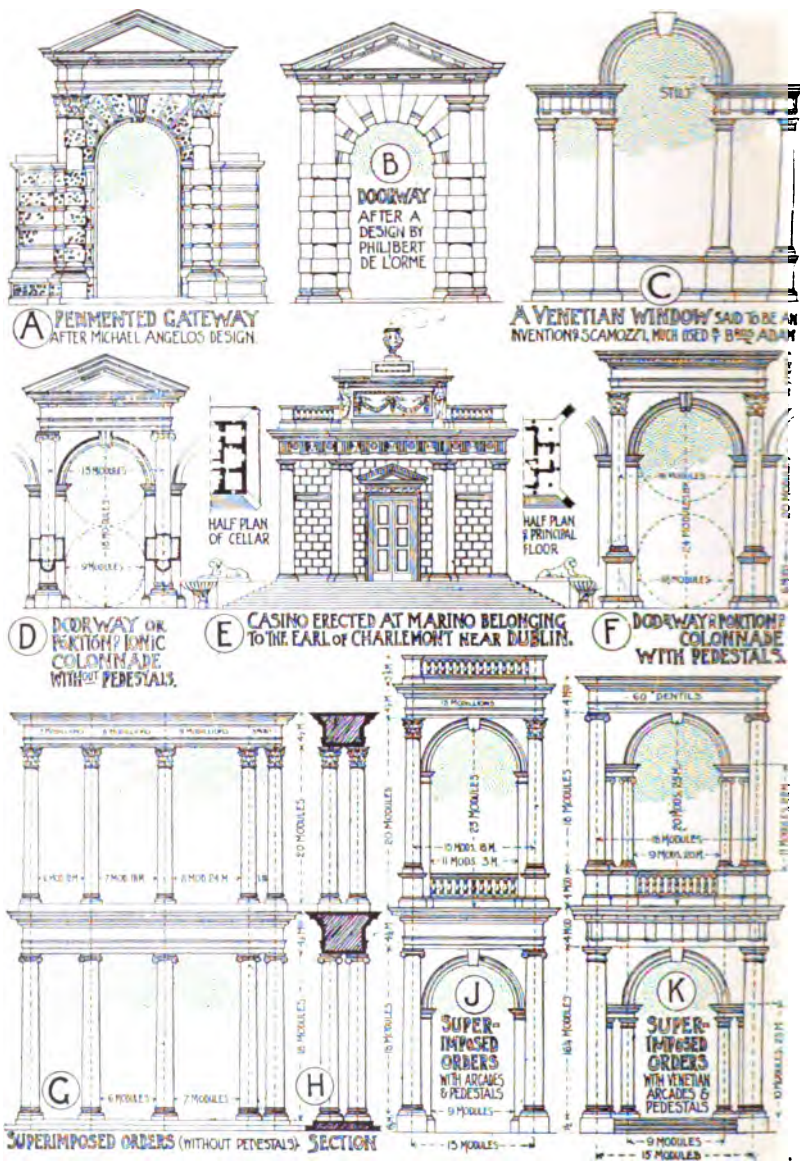
A. Plans.—These are marked by regularity and symmetry, sometimes showing signs of being dictated by a preconceived elevation. The Italian use of a *piano nobile* above a storage basement, affected the planning of many country houses (No. 258). Excessive cellarage, or kitchen offices, occupy the ground floor, and the best rooms are reached by a great external staircase and portico (No. 258 D), or by a mean approach from a side door through the basement. Octagonal, circular, and elliptical-shaped apartments, often cubical in proportion, are usual (No. 258 c), and suites of such saloons are arranged in various combinations. Staircases receive much attention, ingenious domical, or other top lights, being introduced. Corridors gradually supersede the hall and *en suite* or thoroughfare systems of planning (Nos. 131 G, H, J, K, 238 F, 252 E and 258 C, F).

B. Walls.—These are usually thick, and filled in solid between the varied shapes of the rooms, on plan. Brick was used most commonly for walling, and often for the facing, but in later work it was usually stuccoed. Stone was used as an ashlar facing and for dressings. Unbroken surfaces contrasted with the porticos, pilasters, or window dressings of the composition (No. 258), and blank walls, to mask undesirable necessities, are not uncommon. Chimneys are often concealed. Pediments are the only form of gable, and are used with and without balustrades.

C. Openings.—Windows were reduced in number as much as possible, but infrequency of openings was compensated for by large and unobstructed window areas (No. 260 B), sometimes of a special Venetian Character (No. 261 c). Porticos, arcades, and doorways (No. 261), were regulated by the proportions of the Classic orders, and the minimum condition of having to pass through them (No. 260 A, C, E); the maximum scale was a question of material and expense. Gate piers are frequently in excellent proportion (No. 260 G). Vertical grouping of windows was effectively developed, as in houses in Hanover Square, and the large compositions of windows to more than one room or story were not affected by party-wall or floor divisions, as in the houses of the Brothers Adam in Fitzroy Square, and elsewhere.

D. Roofs.—"No roof but a spherical one being sufficiently dignified" for this style, balustrades or attics conceal the small

ENGLISH RENAISSANCE EXAMPLES. IX.



amount of low-pitched roof covering the building (No. 258). In the smaller works, tiled roofs having a wooden eaves cornice, were often effectively used. Domes, cupolas, and turrets were well designed, those on a large scale being lead covered, while small examples were sometimes entirely of wood. The splendid steeples of the period, in stone and wood, covered with lead, rival mediæval spires in fanciful and skilful outlines (No. 255).

E. Columns.—The orders were used wherever funds permitted (No. 260). Single order porticos of large scale were not possible owing to the small size of stone obtainable, but on the introduction of stucco and iron these could be erected. Pilasters, however, were most often of two or more stories in height (Nos. 258 A and 259). Columns, often purely decorative in function, were employed in interiors with considerable effect. The canons of proportion first laid down by Vitruvius (page 167) were still further insisted on by Sir W. Chambers (Nos. 261, 262), who took various Renaissance architects as his guide.

F. Mouldings.—The standard mouldings of the Classic orders became the stock-in-trade of every workman, being applied in every material with small modification (Nos. 260, 262), and design is thus often found of equal standard in very varied classes of building. The large employment of wood, in which material smallness of scale was rendered possible, admitted of much elaboration and refinement in such features as the main external cornices and doorways.

G. Ornament (No. 260).—Wall tablets (No. 260 D), tombs (No. 260 J), and chimney-pieces (No. 260 H, K) are among the most pleasing decorative features in the style. Whitewash was usual, but sometimes fresco decorations were employed, artists such as Verrio and Sir James Thornhill being engaged. The orders were executed with facility in wood or plaster, or both, and small buildings resembling Roman Temples (No. 261 E) were most effectively grouped in parks and gardens. Decoration, founded on Roman, or in the later period, on Greek examples, was modelled in stucco with great skill and effect, and French work of the style of Louis XIV. and his successors was also followed, while the Brothers Adam and others imported Italian workmen, who carried the art to a high pitch of technical excellence.

5. REFERENCE BOOKS.

LATER ENGLISH RENAISSANCE.

(SEVENTEENTH AND EIGHTEENTH CENTURIES.)

Adam (R. and J.).—"Works in Architecture." 3 vols., folio. 1773-1822.

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Blomfield (R.).—“A History of Renaissance Architecture in England.” 2 vols., 8vo. 1897. (Also abridged edition. 8vo. 1900.)

Clayton (J.).—“Works of Sir Christopher Wren—the Parochial Churches of London and Westminster.” Folio. 1848-1849.

Gibbs (J.).—“Book of Architecture.” Folio. 1728.

“Inigo Jones’s Designs.” By W. Kent. Folio. 1835.

Paine (T.).—“Plans, etc., of Noblemen’s and Gentlemen’s Houses.” 2 vols., folio. 1767-1783.

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Swan (A.).—“Designs in Architecture.” 2 vols., folio. 1757.

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Triggs (H. Inigo) and H. Tanner, jun.—“Some Architectural Works of Inigo Jones.” Folio. 1901.

Triggs (H. Inigo).—“Formal Gardens in England and Scotland.” Folio. 1902.

“Vitruvius Britannicus.” By Campbell, Woolfe, and Gandon. 5 vols., folio. 1715-1771.

Ware (I.).—“Complete Body of Architecture.” Folio. 1756.

Wren (C. and S.).—“Parentalia.” Folio. (Contains much interesting information concerning the life and work of Sir Christopher.) 1750.

Hope (A.).—“Simon Dale.”

Lytton (Lord).—“Devereux.”

Scott (Sir W.).—“Woodstock.”

Thackeray (W. M.).—“Esmond.”

Thackeray (W. M.).—“The Virginians.”

Wingfield (L.).—“Lady Grizel.”

} Historical Novels.

THE EARLY VICTORIAN STYLE

(THE AGE OF REVIVALS),

Comprises the reigns of George IV. (1820-30), William IV. (1830-37), and Victoria (part of) (1837-51).

1. INFLUENCES (see page 545).

2. ARCHITECTURAL CHARACTER.

The notes on this period are merely given as explanatory of the general course of architecture at this time. The beginning of the century saw Palladianism on the decline, and the introduction of eclecticism as a governing idea in architectural design.

On the one hand, isolation from the Continent, due to the Napoleonic wars, shut out new ideas in art, and on the other hand, Stuart and Revett’s “Antiquities of Athens” (A.D. 1762), Robert Adam’s “Spalato” (A.D. 1764), Inwood’s “Erechtheion”

ENGLISH RENAISSANCE.



(A.D. 1831), the writings of Professor Cockerell and the publications of the Society of Dilettanti (A.D. 1769), caused an increased interest in Classic architecture and the erection of buildings copied from Greek originals, which is known as the "Greek Revival," a movement much strengthened by the importation of the Elgin marbles in 1801-1803.

Somewhat later, the influence of literature helped to produce what is known as the "Gothic Revival." Battey Langley's "Gothic Architecture Improved," Rickman's "Attempt to Discriminate the Gothic Styles" (A.D. 1819), the writings of Coney, Paley, Wild, Cotman and the elder Pugin, Brandon's "Churches of the Middle Ages," and other works, Britton's *Architectural Antiquities of Great Britain* (1807-1826), the "Cathedral Antiquities of Great Britain" (1814-1835), and the works of other writers, caused an increasing interest to be taken in Gothic Architecture. This interest was further aided by the erection of Strawberry Hill (1760-1770), a Pseudo-Gothic Abbey, by Horace Walpole, and Fonthill Abbey (a monastic building with modern internal arrangements), by James Wyatt, already referred to (page 582).

3. EXAMPLES.

Note.—Examples in the Classic and Gothic schools of architecture, which now, for the first time, run concurrently, are placed side by side.

THE CLASSIC SCHOOL.

H. W. Inwood (1794-1843): New Church of S. Pancras (1819), an attempt to copy absolutely the purest of Greek detail, reproducing in many respects the Erechtheion, Athens.

Nash (1752-1835), of the Regency, introduced the age of stucco: Haymarket Theatre; Buckingham Palace, since altered by Blore; Regent Street, with Quadrant (the colonnades have since been removed); All Souls, Langham Place, and the laying out of Regent's Park in palatial blocks of symmetrical architecture.

William Wilkins (1778-1839): University College, London; the National Gallery (fettered with conditions); S. George's Hospital, London; Museum at York; Downing College, Cambs., and The Grange House, Hants (1820).

THE GOTHIC SCHOOL.

Savage: S. Luke, Chelsea (1820), an early attempt at revived Gothic, the galleried church of the period being clothed with details, directly copied from old cathedrals and churches.

Sir Jeffrey Wyatville (1766-1840): transformed Windsor Castle in 1826. This started a fashion for castellated mansions, internally of the traditional architecture, and externally battlemented and turreted in imitation of the Edwardian castles, as at Belvoir Castle.

William Wilkins: New Court, Trinity College, Cambs., and the New Buildings, King's College, Cambs.

John Shaw (A.D. 1776-1832): S. Dunstan in the West, Fleet Street (A.D. 1831-1832), a fine treatment of a town church, since spoilt by erection of adjacent buildings.

THE CLASSIC SCHOOL.

Sir Robert Smirke (1780-1867), a pupil of Sir John Soane: The British Museum (1823-1847) (in which remark the application of the useless but grandeur-giving porticos to public buildings); General Post Office; King's College, London (1831).

George Basevi (1795-1845), a pupil of Sir John Soane, erected Fitzwilliam Museum, Cambs.

Decimus Burton (1800-1881): Screen at Hyde Park Corner in 1824; Athenæum Club, Pall Mall, and United Service Club, Pall Mall.

H. L. Elmes (1815-1847): S. George's Hall, Liverpool, won in competition, is the most perfect design of the Classic School, the main hall recalling the Roman Thermæ (page 144). Externally a colonnade and portico design is handled with great effect. On the death of Elmes, Prof. Cockerell completed the decoration of the interior. The vault was executed in hollow tiles by Sir Robert Rawlinson.

Sir W. Tite (1798-1873): Royal Exchange, London.

Prof. C. R. Cockerell, R.A. (1788-1863), travelled much in Greece and Italy, and published "The Greek Temples of Ægina and Bassæ." He erected the Taylor and Randolph Institute, Oxford; the Sun Fire Office, Threadneedle Street, London (recently altered); Banks of England at Manchester, Bristol, and Liverpool; and Hanover Chapel, Regent Street (1825) (lately demolished).

Sir Charles Barry (1795-1860) travelled extensively in Egypt, Greece, and Italy. He abandoned the fashion of useless porticos, and brought in the "astylar" treatment of design. The Travelers' Club, Pall Mall, shows the influence of the Pandolfini Palace, Florence, and was followed by the Reform Club, Pall Mall, a design inspired by the Farnese Palace, Rome. In Bridgewater House, the

THE GOTHIC SCHOOL.

Augustus Welby Northmore Pugin (1812-1852), from being employed upon his father's books of mediæval architecture, acquired an extraordinary knowledge of the style. He published a rousing pamphlet contrasting the "degraded" architecture of the day with what he called the "Christian" style. A new spirit of church building was awakened, and, by the earnest study of old work, a new era in the Gothic revival began. Pugin erected more than sixty-five churches in the United Kingdom, and many in the colonies, besides convents, monasteries, mansions and schools, and made a vast number of designs in collaboration with or as assistant to others. He had not yet arrived at the meridian of his power when he died at the age of forty.

In the Gothic revival Pugin sought to restore the fervour of faith and the self-denying spirit which were the real foundations of the artistic greatness and moral grandeur of the Middle Ages.

Amongst the numerous works which he erected, only the few following typical examples can be mentioned:—Roman Catholic churches at Nottingham, Derby, and elsewhere; S. George's Cathedral, Southwark, and S. Augustine's, Ramsgate, 1855. He worked under Sir Charles Barry on the stained glass, metal work, fittings, and ornamental work generally of the Houses of Parliament.

Sir Charles Barry: Birmingham Grammar School, 1833; Houses of Parliament, commenced 1840 (No. 263), in which symmetry of the leading lines on plan, simplicity of idea, and richness of character pervade the whole design, which is Classic in inspiration, Gothic in clothing, and carried out with scrupulous adherence to the spirit and detail of the Perpendicular period.

THE CLASSIC SCHOOL.

third of the series (1849), the influence of the Gothic revival is evidently felt, greater richness is sought after, and the Italian feeling is less strong. His final work, the Town Hall at Halifax, is a still more ornate example of the Renaissance, the intention being to combine picturesqueness with symmetrical stateliness. Other important works in the country are: Trentham Hall (where landscape gardening of the Italian School is admirably carried out), Shrublands, Highclere, and Cliefden.

Sir James Pennethorne (1801-1871), assistant to Nash, and influenced by Barry, discarded porticos as unnecessary, and followed on Renaissance rather than Classic lines: Geological Museum, Piccadilly (after courtyard of the Doge's Palace, Venice); the Civil Service Commission, Burlington Gardens; Somerset House, western wing (A.D. 1857); Record Office, Fetter Lane. Orders were sparingly used, and detail is refined.

THE GOTHIC SCHOOL.

Pugin, under Sir Charles Barry, directed the execution of the fittings, agreeing with the style of the building, and in marked contrast to the previous buildings of the Revival.

The immediate effect of the design of this great building was slight. It was the climax of the first idea of the movement—that of carrying on the Tudor style—so that, at the time of its completion, in 1860, the attention of all was riveted on the earlier phases of mediæval architecture which everyone was engaged in imitating.

The end of the period of Sir Charles Barry marks the close of the Classic Revival. The influence of the Gothicists was now paramount, and the final touch to this influence was given by the 1851 Exhibition, which in the end has done so much to raise the arts and crafts to a higher state of perfection.

THE LATE VICTORIAN STYLE,

Comprises the latter part of the reign of Victoria (1851-1901).

The Great Exhibition of 1851 caused the raising into prominence of the minor arts, such as metal work, glass painting, mosaics, decoration, and sculptured works, and formed a starting point for the arts of the Victorian age. The popularization of architecture by the architectural courts and models of buildings in the various styles aroused an interest in the subject. The publication of "The Seven Lamps of Architecture" and "The Stones of Venice," by Ruskin, in 1851, and the works of Beresford-Hope, Parker, Prof. Willis, Sharpe, Whewell, Rev. J. L. Petit, Brandon, and others, helped on the Gothic movement, while Prof. Cockerell and Prof. Donaldson were writing on the Classic side.

The foundation of the South Kensington (now Victoria and Albert) Museum carried further the influence of the 1851 Exhibition, by its illustration of ancient decorative art, and by the atelier which was there maintained for some years.

The restoration of a large number of cathedrals and churches, and the erection of many new churches, had powerfully aided

the Gothic revival, which it was attempted to extend to buildings for every purpose; until the movement met with a severe check in the decision, acquiesced in by Sir Gilbert Scott, to erect the Home and Foreign Offices (1860-1870) in the Classic, or as it was called, the modern style. The design thus dictated to Scott was not likely to be a masterpiece, and it is in fact but a poor compromise between modern French and the traditional Italian ideas of the Renaissance. After this crisis a new movement, due to Norman Shaw, Nesfield, and Philip Webb, then arose in favour of the Queen Anne style, or Free Classic, for domestic buildings, while churches and kindred buildings continued to be erected in a developed style of Gothic architecture.

The work of Shaw, Nesfield, and Webb influenced the design of smaller buildings in suburbs and country.

CLASSIC SCHOOL.

E. M. Barry (1831-1880): Covent Garden Theatre; The Art Union Building, Strand; Charing Cross Station. He endeavoured to introduce the Early French Renaissance, as in the Temple Chambers, Victoria Embankment, London.

Nelson: Junior United Service Club.

F. P. Cockerell: The Freemasons' Tavern.

Sir Gilbert Scott (1810-1877): The Foreign Office.

Sir Digby Wyatt (1820-1877): Courtyard to India Office.

Messrs. Banks and Barry: Dulwich College; Burlington House (the Courtyard and façade to Piccadilly).

Sydney Smirke: The story added to Burlington House; British Museum reading-room; Carlton Club, Pall Mall, after the library of S. Mark, Venice.

Lewis Vulliamy: Dorchester House, London, after a Roman Renaissance palace, has unique decorative work inside by Alfred Stevens.

John Gibson: National Provincial Banks in London and the provinces, in which the Classic orders embracing two stories are freely introduced; the Society for the Promotion of Christian Knowledge, in Northumberland Avenue,

GOTHIC SCHOOL.

Sir Gilbert Scott (1810-1877): Camberwell Church; S. Mary, Stoke Newington; the Martyrs' Memorial, Oxford; church at Haley Hill, Halifax (1855); church at Hamburg; S. George, Doncaster (1853); S. Mary's Cathedral, Edinburgh; S. Mary Abbott, Kensington; the Albert Memorial; S. Pancras Station; buildings in Broad Sanctuary, Westminster; many other new churches, houses, and restorations.

Owen Jones: S. James's Hall, a modern version of Venetian Gothic.

Benjamin Ferrey: S. Stephen, Westminster.

William Butterfield: Keble College, Oxford; All Saints, Margaret Street, London; and S. Alban, Holborn, all of which show the increasing desire for and study of color.

G. E. Street (1824-1881): S. Mary Magdalene, Paddington; S. James the Less, Westminster, 1861; the Law Courts, London; house in Cadogan Square; the Convent, East Grinstead; house and church at Holmwood, and elsewhere.

W. Burges (1828-1881): Cork Cathedral (1870); restored Cardiff Castle, and built his own house in Melbury Road, London; the Speech Room, Harrow School.

R. Brandon: Catholic and

CLASSIC SCHOOL.

London, since altered ; Todmorden Town Hall.

Sir Horace Jones : The Smithfield Market and Guildhall School of Music.

Capt. Fowke and Assistants : The Science College, South Kensington, and the Albert Hall.

Crossland : Holloway College, Egham (after Château de Chambord).

Whichcord : S. Stephen's Club ; National Safe Deposit, London.

Davis and Emmanuel : City of London Schools.

Burns : Buccleuch House, Whitehall.

Alexander Thomson, of Glasgow, known as "Greek Thomson" : several buildings at Glasgow with a peculiar severe treatment of modern Greek which had much influence.

H. Currey : S. Thomas's Hospital.

Bodley and Garner : London School Board Offices, Thames Embankment. The student confined to London may obtain an idea of the early French Renaissance style by an inspection of this building.

H. Gribble : The Oratory at Brompton, west front and dome added later. (The Italian style a condition of the competition.)

W. Young : Glasgow Municipal Buildings, in the Palladian manner ; Gosford Park ; War Office, Whitehall.

Leaming Brothers : Admiralty Buildings, Whitehall. (The result of an open competition which practically sounded the death knell of Gothic architecture for public buildings.)

R. Norman Shaw : New Zealand Chambers, Leadenhall Street, London ; country houses, as "Wispers" ; Lowther Lodge, Kensington, and houses at Bedford Park, Chiswick ; Alliance Assurance Office, Pall Mall ; houses at Queen's Gate, London ; house near

GOTHIC SCHOOL.

Apostolic Church, Gordon Square, London, 1859.

E. W. Godwin : Congleton Town Hall, Bristol Assize Courts, and Northampton Town Hall, since altered.

A. Waterhouse : Manchester Town Hall and Assize Courts ; Natural History Museum, 1879 ; Prudential Assurance Offices, Holborn ; Eaton Hall, Cheshire ; City Guilds of London Institute, South Kensington.

Deane and Woodward : The Oxford Museum, directly the outcome of Ruskin's teaching.

Philip Webb : "Clouds," Hampshire ; Lord Carlisle's house, Kensington ; offices at Lincoln's Inn Fields.

W. E. Nesfield : Lodges at Kew and Regent's Park, and many houses.

J. L. Pearson, R.A. : Truro Cathedral. His eight London churches :

- (1) Holy Trinity, Bessborough Gardens (1850).
- (2) S. Anne, Lower Kennington Lane.
- (3) S. Augustine, Kilburn.
- (4) S. John, Red Lion Square.
- (5) S. Michael, West Croydon.
- (6) S. John, Upper Norwood.
- (7) Catholic Apostolic Church, Maida Hill.
- (8) S. Peter, Vauxhall.

Chiswick Parish Church (additions) ; S. John, Redhill ; S. Alban, Birmingham.

Astor Estate Offices, Thames Embankment.

James Brooks : Churches in Holland Road, Kensington, Gospel Oak, and many others round London.

Goldie : S. James, Spanish Place, London.

G. G. Scott : S. Agnes, Kensington ; churches at Southwark and Norwich ; the Greek Church, Moscow Road, London ; S. Mark, Leamington, 1879 ; additions to Pembroke College, Cambridge.

CLASSIC SCHOOL

Salisbury, in the Wren style; "Craigsides," "Dawpool," and "Bryanston," near Salisbury; houses at Hampstead; Harrow Mission Church, Wormwood Scrubs; New Scotland Yard (Anglo-Classic).

T. G. Jackson: Work at Oxford; the Examination Schools and additions to colleges in revived Elizabethan.

Ernest George and Peto (Influence of Flemish Renaissance): Works at Collingham Gardens and Cadogan Square, London; houses at Streatham Common; Buchan Hill, Sussex, and others.

H. L. Florence: Hotel Victoria, Holborn Viaduct Hotel and Station; Woolland's premises, Knightsbridge.

E. R. Robson and J. J. Stevenson: Work for London School Board; London typical style in red brick dressings and yellow stocks.

E. R. Robson: Institute of Water Colors, Piccadilly; the New Gallery; the People's Palace, London.

R. W. Edis: Constitutional, Junior Constitutional, and Badminton Clubs, London.

T. E. Colcutt: Imperial Institute; City Bank, London; Palace Theatre; Lloyd's Registry Office, London.

E. W. Mountford: Sheffield Town Hall; Battersea Town Hall; Battersea Polytechnic; Liverpool Technical Schools and Art Galleries; Central Criminal Court, Old Bailey, London.

J. M. Brydon: Chelsea Town Hall and Polytechnic; Bath Municipal Buildings, Art Gallery and Pump Room; Government Offices, Westminster.

J. Belcher: Institute of Chartered Accountants; Colchester Town Hall; Eastern Telegraph Co. Offices, Finsbury Circus, Electra House, Moorgate St., London (a monumental example of street architecture), and several large houses.

GOTHIC SCHOOL.

Basil Champneys: Girton and Newnham Colleges, Cambridge; Indian Institute and Mansfield College, Oxford; S. Bride's Vicarage, London; Rylands' Library, Manchester.

Bodley and Garner: Church at Hoar Cross, Staffordshire; Clumber Church; churches at Hackney Wick, Castle Allerton, Leeds, Folkestone, and elsewhere.

John F. Bentley: New Cathedral, Westminster; the Church of the Holy Rood, Watford; S. Luke's Church, Chiddingstone Causeway; S. Thomas's Seminary, Hammersmith; S. John, Hammersmith; S. John, Brentford; S. Mary, Clapham, and many others.

Sir Arthur Blomfield: S. Mary, Portsea, and many other churches; Sion College, Thames Embankment; the Church House, Westminster; All Saints, Brighton (also see "Greek Architecture," page 56).

Paley and Austin: Stockport and other churches in Lancashire.

Douglas and Fordham: Churches and domestic half-timber work, in Chester and elsewhere.

J. D. Sedding (1837-1892): Holy Trinity Church, Chelsea (1890), marks the raising of the arts and crafts into their proper importance; the Church of the Holy Redeemer, Clerkenwell (a new version of the Wren style); S. Clement, Bournemouth, and domestic work adjacent; Children's Hospital, Finsbury, London, and in conjunction with H. W. Wilson, S. Peter, Ealing.

Sir Aston Webb and Ingress Bell: Birmingham Assize Courts; Insurance Buildings, Moorgate Street, London; Christ's Hospital, Hordsham, Sussex.

Sir Aston Webb: Metropolitan Life Office, Moorgate Street; French Church, Soho Square, W.

Ernest Newton: Houses at

CLASSIC SCHOOL.

Sir Aston Webb: Victoria and Albert Museum (South Kensington); Naval College, Dartmouth; Victoria Memorial Processional Avenue, London.

H. T. Hare: Oxford Municipal Buildings; Stafford Municipal Buildings; Henley Town Hall; Crewe Town Hall.

Lanchester, Stewart and Rickards: Cardiff Town Hall and Law Courts.

GOTHIC SCHOOL.

Haslemere, Wokingham and elsewhere.

Leonard Stokes: Churches and schools at Folkestone, Liverpool, and elsewhere.

W. D. Caröe: Churches at Exeter, Fordington, and elsewhere; Episcopal Palaces, Bristol and Canterbury.

G. H. Fellowes Prynne: Churches at Staines, Dulwich and elsewhere.

During the last fifty years the pages of the professional journals have contained most of the noteworthy buildings erected, and it is a source of much pleasure and instruction to go through these records of the developments which have taken place, for they seem to show that a style or manner in architecture is being slowly worked out, which may, it is hoped, resist all revivals and fashions, and become the free expression of our own civilization, and the outward symbol of the twentieth century.

British Colonial Architecture.

The development of architecture in the great self-governing colonies, such as Australia, New Zealand and Canada, has to a large extent followed the lead of the mother country, and buildings have been and are erected both in the Classic, Gothic and Renaissance styles. As in England, Classic is principally though not wholly reserved for secular buildings, and Gothic for ecclesiastical buildings, a homely type of design resembling our own Georgian style being employed for smaller domestic works of the country-house type. Some of the larger works are of importance and are an evidence of the political growth of those colonies in which they are situate. Among those in the "Classic" school are the MacGill University, Montreal, and the Parliament House, Melbourne; and a large number of banks, insurance offices, city halls, and law courts. In the "Gothic" school, Melbourne Cathedral, and the Parliament House at Ottawa are outstanding examples. The Parliament House at Sydney was intended to be rebuilt in this style, but the building was not proceeded with further than the foundation, the old buildings being still in use.

ARCHITECTURE IN THE UNITED STATES.

"Built in the old Colonial day,
When men lived in a grander way,
With ampler hospitality;
A kind of old Hobgoblin Hall,
Now somewhat fallen to decay,
With weather stains upon the wall
And stairways, worn and crazy doors,
And creaking and uneven floors,
And chimneys huge, and tiled and tall."—LONGFELLOW.

THE study of the progress of architecture in a new country, untrammelled with precedent and lacking the conditions obtaining in Europe, is interesting; but room is not available for more than a cursory glance.

During the eighteenth century (1725-1775) buildings were erected which have been termed "*colonial*" in style, corresponding to what is understood in England as "Queen Anne" or "Georgian" (page 578).

In the "New England" States wood was the material principally employed, and largely affected the detail. *Craigie House, Cambridge* (1757), is typical of the symmetrical buildings. It has elongated Ionic half-columns to its façade, shuttered sash windows, the hipped roof and the dentil cornice of the "Queen Anne" period; the internal fittings resembling those of Adam and Sheraton.

The early buildings were mainly churches or "meeting houses," erected after the manner of Sir Christopher Wren. *S. Michael at Charlestown* (1752) (the probable architect being Gibbs, the designer of the Radcliffe Library at Oxford), *S. Paul, New York* (1767), *Christ Church, Philadelphia* (1727-1735), were among the early churches.

In Virginia, as at Brandon, Shirley, and Maryland, the homes of the tobacco planters, many of the best examples of country houses were erected.

Independence Hall, Philadelphia (1729-1735), the *Old State House at Boston* (1747), and the *Town Hall at Newport* are other well-known buildings.

The Spanish rule in Florida and California is responsible for

many forts, churches and mission houses, which bear resemblance to the Spanish Renaissance buildings.

Between the Declaration of Independence (1776) and the war of 1812, owing to the erection of new State capitals, a more monumental type was evolved. Among the buildings of importance a few only can be mentioned.

The original *Capitol at Washington* (1793-1830), by Thornton, Hallet and Latrobe.

Virginia University (1817), by Jefferson, recently destroyed by fire, and rebuilt in a similar manner by McKim, Mead and White, and the *Massachusetts State House at Boston* (1795), by Bullfinch, recently enlarged and restored.

The Classic Revival (1812-1870) of Europe reached the States somewhat late, but produced similar results.

Among the buildings were the *Wings and Dome of the Capitol at Washington* (1858-1873), by Walters, which became the model for many public buildings. The *Customs House at New York*, the *United States Mint, Philadelphia*, the *Treasury at Washington*, *Boston Custom House*, several State capitols, the *Town Hall, Philadelphia*, and the *Capitol at Albany*, begun in 1871.

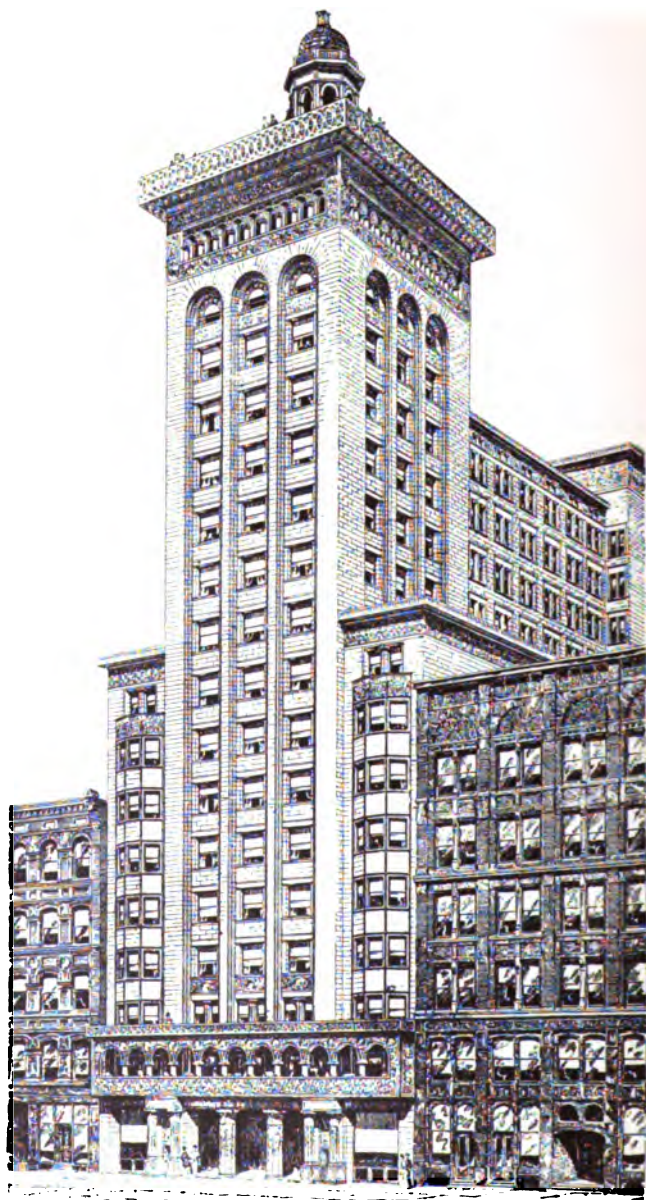
The Gothic Revival was confined principally to churches (1840-1876). *Grace Church* (1845) and *S. Patrick's Cathedral, New York* (begun in 1858), both by Renwick; *Trinity Church, New York* (1839-1846), by R. Upjohn; the *State Capitol at Hartford*, by R. M. Upjohn (1873-1878); the *Museum at Boston* (1876-1880); the *Academy of Fine Arts, Philadelphia* (1876); *Memorial Hall, Harvard College* (1870-1877), are examples of this revival.

Recent Architecture.—The industrial activity which followed the civil war (1861-1865), and the devastating conflagrations of Chicago (1871) and Boston (1872) all helped to create greater interest in architecture, while such exhibitions as that at Philadelphia (1876), Chicago (1893) and S. Louis (1904) have aided in enlarging the national ideas.

Two architects, H. H. Richardson (1826-1886), and R. M. Hunt (1827-1895) also helped the movement, both in very different ways. Richardson, although a pupil of the École des Beaux-Arts, worked in the non-academic French Romanesque manner, and greatly influenced his contemporaries and successors.

Trinity Church, Boston (1877), *Pittsburgh County Buildings*, the *Albany City Hall*, work at *Harvard University*, and many charming small libraries round Boston, are his well-known examples.

R. M. Hunt has been specially employed in the erection of large town and country houses, among which may be mentioned, *Houses at Newport*, "*Biltmore*"—a country *château* in North Carolina—many city buildings, including the *Lenox Library, New York* (1871-1877), and the additions to the *Metropolitan Museum of Art, New York*.



GARRICK (FORMERLY SCHILLER) THEATRE, CHICAGO.

The abnormal progress of American industries during the last 25 years, the general use of lifts and fireproof construction and the cost of land has caused the erection of many important town buildings of great height.

In some the walls have been constructed of a framework of steel, supporting masonry brick or terra-cotta inclosing walls. Such buildings are essentially modern in character, but are not necessarily ugly in design. Among the most important are the *Garrick (Schiller) Theatre, Chicago* (No. 264), by Messrs. Adler and Sullivan, a most successful and chaste design as applied to a high building, which is in reality a tower, *The Monadnock Building* and the *Masonic Temple at Chicago*, by Messrs. Burnham and Root.

The *Ames Building* and *Tremont Temple in Boston*; *Madison Square Theatre in New York*, and the enormous buildings of the leading newspapers, insurance offices and trusts are notable.

Domestic Architecture.—The houses of small type have been very successfully treated, wood being largely employed in the country districts.

The plan of these houses often shows great originality, the staircase, sitting-hall, piazza, and a picturesque grouping of steep roofs, being main features.

Among later buildings of note are *S. John the Divine, New York*; *President Grant's Tomb, Riverside Drive, New York*; *Chicago Public Library*, by Shepley, Rutan, and Coolidge; *Congressional Library at Washington*, by Petz, Smithmeyer and Green; *New York Public Library*, by Carrère and Hastings; the *State House, Providence*, by McKim, Mead and White; *University of Pennsylvania, at Philadelphia* (various buildings), by Cope and Stewardson; *Libraries at Washington and Atlantic City*, by Ross and Ackermann; the *Ponce de Leon Hotel at Florida*, in the Spanish Renaissance style, by Carrère and Hastings, and the *Boston Public Library*, a modern Renaissance design by McKim, Mead and White, which has had a good deal of influence in the designing of recent library buildings. The same architects have erected very scholarly and refined buildings at the *Columbia University at New York*.

The designs of the various buildings for the Chicago Exposition (1893) differed largely from expectation. Many looked for some new development in either iron or terra-cotta, or perhaps wood alone, being in a country which is the centre of the lumber market; but "extremes meet," and an exposition of architecture on the wilds of the western prairie turned out to be a collection of well-studied Parisian designs.

It is to be hoped that the imitative element will not cause these great Classic designs to be reproduced elsewhere for town halls, museums and other buildings, but that American architects already advancing so rapidly along certain new lines of departure, will value the lessons they teach without copying their exact

forms; if not there will be another great American Classic revival of the French type which will go far beyond any craze such as has occurred in England and do a great deal to retard the true progress of art in America.

In conclusion, it is certain that there is a great future for American Architecture if only the architects will, as much as possible, express themselves in the language of their own times. No advance can be made by the copying of ancient buildings, as has been done in certain cases, constituting a retrogressive movement, and showing a sad want of the appreciation of the true value of art.

The great historic styles must of course be well studied, not for the forms with which they abound, but for the principles which they inculcate, much in the same way that the literature of the past is studied in order to acquire a good literary style. If architecture is thus studied a good result will be assured, and the architect will produce works reflecting the hopes, needs, and aspirations of the life and character of the age in which he lives.

A
HISTORY OF ARCHITECTURE
ON THE
COMPARATIVE METHOD.

PART II.

THE NON-HISTORICAL STYLES.

GENERAL INTRODUCTION.

THE non-historical styles—Indian, Chinese and Japanese and Central American—are those which developed mainly on their own account and exercised little direct influence on other styles. They can thus be studied independently, and need not interrupt the story of the evolution of European Historical Architecture dealt with in Part I., which would probably be the case if they were placed in their chronological order. The position which they should occupy in a History of Architecture is, however, a matter of doubt, but it is thought that by keeping them quite separate from the historical styles, it will make for greater clearness to the student.

Saracenic architecture is also placed in Part II., as its connection with European architecture is not generally considered important, although it certainly influenced it to some extent.

Mention should be made of the late Mr. Fergusson's investigations on the subject. He was the first to piece together the story of Indian and Eastern architecture, not only by his own patient researches, but by utilizing the vast amount of material brought to light by General Cunningham and a score of others, who had been working mainly in connection with government departments. Mr. Fergusson's chronology is founded on his own labours and such investigations, and is the one which has been followed.

The study of Indian and indeed of all Eastern art enlarges the view, since it presents many novel forms to which one is

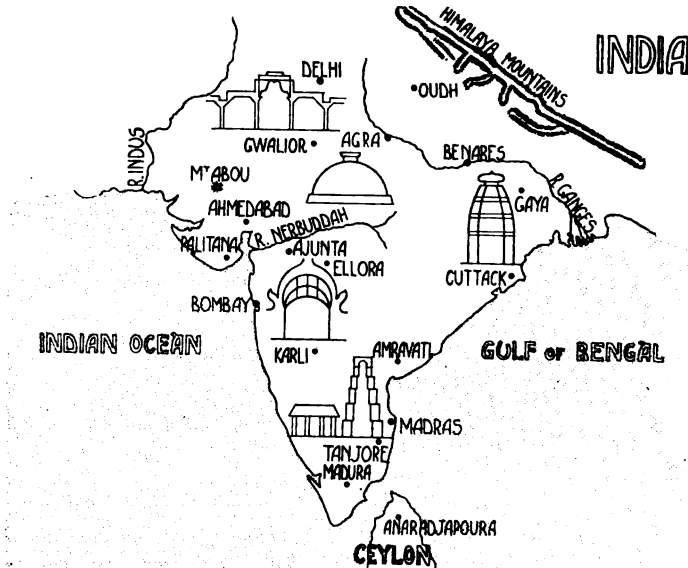
unaccustomed, and which, doubtless because of their unusual character, often strike one as ugly or *bizarre*. It is, however, a question of taste and education as to whether this impression is really due to this unusual character, or whether such forms would not be considered beautiful if sanctioned by custom.

"Use is second nature;" and Indian architecture was no doubt beautiful to those who were engaged on it and to whom it was meant to appeal.

It is certain that in no other style was such patient care and labour bestowed on the minutest detail. From an architect's point of view, these non-historical styles can scarcely be so interesting as those which have progressed on the solution of constructive problems, resolutely met and overcome, as was the case in Europe from the Classic period to that of the Renaissance.

In India and the East, decorative schemes seemed to have outweighed any such problems.

The student should visit the Indian Museum at South Kensington, which possesses a most valuable collection of portions of original buildings, casts of details, and models of temples, monuments and houses.



INDIAN ARCHITECTURE.

“More thought than woe was in her dusky face,
For she was prophesying of her glory :
And in her wide imagination stood
Palm-shaded temples and high rival fanes
By Oxus or on Ganges’ sacred isles.”—KEATS.

I. INFLUENCES.

i. **Geographical.**—India—a three-cornered country—occupies an area fifteen times greater than Great Britain. Bounded on the North by the Himalayas on the North-West by the Suleiman mountains, and on the East by the heights of Southern Assam, the remaining portion is bounded by the sea. The coasts, deficient in good harbours, may have helped to keep the people aloof from extraneous influences ; but by her position she was destined to receive the human overflow from the ancient breeding grounds of Central Asia.

The rivers, as the Nerbudda, Ganges, Indus, Krishna, and Jumna, were important as affording employment to thousands of boatmen, and were utilized for rafting down timber used for building from the immense forests. By forming trade routes or cheap highways they assisted in the formation of great cities. The Ganges-Jumna Valley contains some of the principal cities of architectural importance. Delhi (the “Rome of India”), a collection of ruins of different cities, covers nearly 50 square miles. It was the capital of the Mogul Emperors (page 671). Its architectural importance was probably gained through being at the junction of four historic roads, viz. : that from the Lower Ganges, the Hindu Koosh, the Indus Valley and the Gulf of Cambay. Delhi is therefore the centre of India, as London is of England.

The rock-cut temples on the Western Ghâts are attributed by some to the influence of Egypt, Persia, and Assyria, as they contain capitals and columns of similar design. The proximity of the Greek Bactrian Kingdom in the north-west had considerable classical influence on the architecture, primarily of the

Gandhara district, and thence over Northern India generally. On the east coast the country, being comparatively open, was accessible to the spread of civilization, and this being so, the ancient dynasties of Southern India fixed their capitals there. On the west coast, a narrow strip of lowland only intervening between the Ghâts and the seaboard caused the inhabitants to remain to this day aloof from civilizing movements.

The map (No. 265) taken from Choisy's "Histoire de l'Architecture," indicates the different type of building characteristic of each portion of India.

ii. Geological.—The centre of the Peninsula and the hill country generally abound in excellent building stone, which had considerable influence on Indian architecture from the earliest times. Mention should be made of the pink marble of Rajputána, with which the principal buildings at Delhi and Agra were constructed, also the trap of the Deccan, the sandstone of the Godavari, and the Nardadá, and the granite of Southern India.

At Hullabid, an indurated potstone of volcanic origin is found, so close grained as to take a polish.

In West India, the rock-cut "Chaityas" of the Buddhists were rendered possible by the geological formation, being composed of horizontal strata of trap formation, uniform in texture and of considerable thickness, rising from the ground as perpendicular cliffs, into the face of which the temples were cut.

At Mahavellipore and Ellora, the Dravidian monolithic rock-cut free-standing temples, known as "Raths," were hewn out of the Indian amygdaloidal trap formations of these districts. Terra-cotta seems to have been employed in early times, and may have influenced later work in producing the exuberance of ornament, rendered easy by the pressing of plastic clay into moulds.

A wooden origin is traceable to nearly all the Buddhist architectural forms. Teak is the principal wood of the country, being found in large forests on the Eastern and Western Ghâts, and in the Himalayas. Other woods are ebony, and the bamboo of the jungle. Palms (which afford food, drink, clothing and building material to the native) grow mostly on the lowlands of the coast.

In the low-lying plains of Bengal, brick was used to some extent, but the alluvial soil of this district does not afford good material for brick-making.

Lime for building is obtained by burning limestone and Kankar, a nodular form of impure lime found in most river valleys, and from shells plentifully found in the marshes.

iii. Climate.—India lies mostly within the tropics. Two principal seasons, wet and dry, divide the year. Thus, the climate being tropical, flat terraced roofs, used for coolness, exercise, or sleeping, predominate, as in Egypt (page 29), Assyria and Persia.

The general use of the great fan or *punkah* in the hot season

is significant of the intense heat which prevails, which influenced the size and forms of architectural openings.

The pierced screen or lattice window in Indian and all Eastern art is a decorative feature due to persistent sunshine, and acting as a fine architectural screen against the excessive light and heat.

Water storage being important for irrigation and as a provision for the dry season, rendered necessary the number of canals, reservoirs, and tanks in connection with temples and palaces. These form such special features in Indian architecture.

iv. Religion.—The *Early Vedic* religion, of which the “Rig-Veda”—a collection of poems addressed to the gods—forms the literary memorial, had existed long before the rise of Buddhism in the sixth century B.C.

Buddhist.—Sakya Muni (Buddha—the “Enlightened”), the founder of Buddhism, was born in B.C. 623, and died B.C. 543, and from the age of thirty-five spent his life in preaching.

Asoka (B.C. 272–236) adopted and made Buddhism the state religion, as Constantine did with Christianity. It remained so for nearly a thousand years, *i.e.*, from B.C. 250 till A.D. 750. From the foundation of Buddhism, the first great bond of union among the Indian races, can be traced the historical architecture of India, an architecture of religion, in which the sacred buildings were originally not temples to gods but monasteries or memorial shrines to holy men.

Relic worship, an essential feature of the Buddhist religion, necessitated the erection of the many important topes or dagobas containing a relic of a deceased saint, such as a tooth, bone, toenail, or even hair.

The tenets of Buddhism are inscribed on the monuments chronologically at Buddh Gaya, Bharbut, the topes and gateways at Sanchi and elsewhere, few other records existing.

Tree and serpent worship, which was introduced by the non-Aryan peoples of India, still prevails, and is responsible for many decorative emblems, as seven-headed serpents. The celebrated “Bo-Tree” at Anuradhapura, in Ceylon, has been worshipped for over two thousand years.

Jaina.—This religion, which rose to importance about A.D. 1000, seems to have been founded on Buddhism. A statue of one of the twenty-four Jinas or saints (with distinctive sign, as a bull, elephant, monkey, crocodile, rhinoceros, or lion) is placed in each temple. The extraordinary number of image cells in one building, numbering 236, has led some to suppose that the Jains believed the saint was honoured in direct ratio to the number of his statues.

Hindu.—The modern Hindu religion, generally known as the Bráhmānical (the name of the priestly order), dates from about A.D. 750. It was the joint product of Vedic, Bráhmānism and

Buddhism, and was in reality a social league resting upon caste, a complicated system of division of the people according to race, occupation, and geographical position. It broadly divided all classes of the community into: (*a.*) Bráhmans or priests, law-givers, poets, and scientists; (*b.*) Rájputs; (*c.*) Vaisyas, or Aryan agricultural settlers and craftsmen; (*d.*) Súdras or serfs. Each caste became, as it were, a trade-guild, to whose care the manufactures, muslins, decorative art and treatment of precious stones of mediæval India were due. The Bráhmanical idea on the transmigration of souls did not encourage tomb building. Monastic life ceased with the decay of Buddhism, monasteries being replaced by hypostyle halls, serving as shelters for pilgrims and having sacred lakes occasionally surrounded with porticos.

For the Mahometan religion in India, see page 654.

v. Social and Political.—The people of India have never become amalgamated, but have continued to consist of several races, under conditions practically unchanged for centuries, and mostly independent of each other, hence the different phases of architecture and the want of unity shown therein.

Broadly speaking, the people consist of: (*a.*) The non-Aryan tribes, or aborigines; (*b.*) the Aryan or Sanskrit-speaking race, now called Bráhmans and Rájputs; (*c.*) Hindus, a mixed population formed of the above; and (*d.*) Mahometans.

The tenure of land by feudal princes or lords was an important factor. Such lands produced enormous revenues, which were spent in the erection of religious monuments, largely for self-gratification.

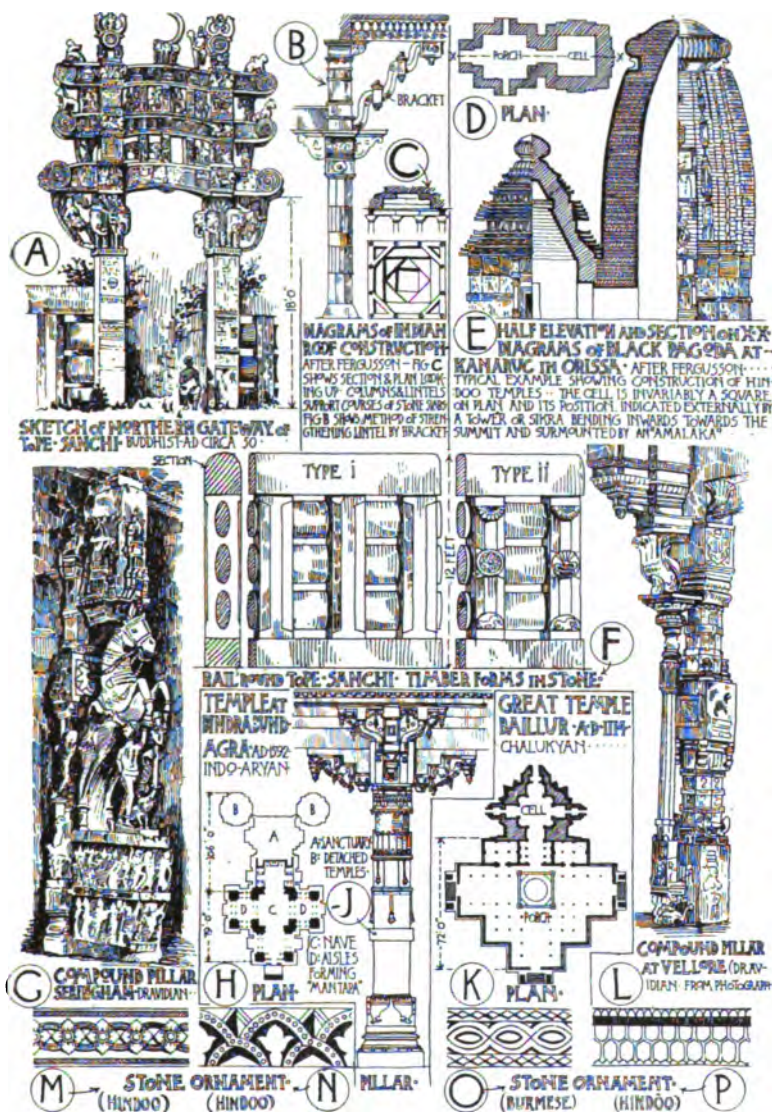
Among the most intellectual class the spiritual and contemplative aspects of life overpowered the practical and political, and influenced architecture in avoiding constructive problems.

Architecture, as a recorder of events, is silent from the expiring years of Buddhism, A.D. 750, to the commencement of the eleventh century, between which periods Indian history is also a blank. The "Mahawanso" of Ceylon, however, forms a history of that island from B.C. 250.

The great Buddhist monastery of Nalanda, to the south of Patna, accommodating 10,000 priests, and existing for the first five hundred years of our era, corresponded to the European monasteries of the Middle Ages, attracting and disseminating all the learning of the age. The Chinese pilgrims to India in A.D. 400 and 630 have left interesting descriptions of their visit to this and other buildings. The *Jains* regarded temple building as a social virtue, leading to a happy future state. Thus private individuals endowed such buildings, which were numerous rather than grand.

The absorption of human personality under the caste system was not favourable to domestic architecture, which has remained in a rudimentary state.

INDIAN EXAMPLES AND ORNAMENT.



Sir W. Hunter's "Brief History of the Indian Peoples" forms an excellent *résumé*, which should be studied by all who require an insight of Indian art and life.

vi. Historical.—Alexander's conquests in North-West India (B.C. 327) (*cf.* page 48), brought that country in touch with European and Western Asiatic art, thus Greek, Assyrian and Persian influences are apparent on the architectural detail in that region. From the time of Alexander to the time of Vasco da Gama (A.D. 1498) Europe had little direct influence on the East.

The proximity of the Greek Bactrian Kingdom (B.C. 323-130), which, along with India, fell to Seleukos Nikator, one of Alexander's generals and founder of the Syrian monarchy, exercised considerable classical influence over Northern India.

The Mahometan invasion in the thirteenth century led to Saracenic features being adopted in India, producing an Indian version of that style.

The Sanskrit grammar of Pánini, compiled about B.C. 350, is still the foundation of the study of the Aryan language. The epic poems known as the "Mahábbárata," or chronicles of the Delhi Kings up to B.C. 1200, and the "Rámáyana," or story of the Aryan advance into Southern India about B.C. 1000, are works by the Bráhmans that may be compared to Homer's "Iliad" and Virgil's "Æneid."

The Tartar or Scythic inroads, from B.C. 126 to the fifth century A.D., succeeded those of the Greeks.

During A.D. 1746-1858 the foundation of British rule in India was progressing, and from the latter year the annexation to the British Crown, effected by Royal proclamation, has caused an intermingling of European and native art.

2. ARCHITECTURAL CHARACTER.

The various Indian styles are divided with approximate dates and localities, the periods, however, frequently overlapping, as follows :—

(1.) The **Buddhist** style (B.C. 250-A.D. 750). India (North of the Dekkan) and Ceylon.

(2.) The **Jaina** style (A.D. 1000-1300), with later revivals. The whole of India from the Himalayas to Cape Comorin.

(3.) The **Hindu (or Bráhman)** style, which may be subdivided into

(a.) The *Northern Hindu* or Bráhman style (or North Indian) (A.D. 600 to the present time).

(b.) The *Chalukyan* style (or Central Indian) (A.D. 1000-1300).

(c.) The *Dravidian* style (or South Indian) (A.D. 1350-1750).

(1.) **Buddhist Architecture.**—As only rock-cut examples are existent, the appearance of the structural temples is only to

be conjectured from these. The rock-cut temples have but one external façade, which is in the face of the rock, and the architecture is therefore mainly internal, but interesting in showing an undoubted imitation of timber originals. Wooden forms were repeated long after their significance was dead (*cf.* Greek Architecture, page 59). With the exception of the one façade, the ornament was lavished on the interior columns and roof, the former of which were short and overladen with ornament, the latter being generally semicircular, with ribs showing a timber derivation (Nos. 267 and 268).

(2.) **Jaina Architecture.**—The Temples have the small square shrine-cell, lighted from the door only, and crowned with a high pyramidal tower, with curvilinear sides, forming an imposing feature. In front, forming an entrance porch, is the hall, with columns having bracket capitals and sometimes angular struts, such capitals supporting a dome or domes, invariably built in horizontal courses of stone. Thus the domes, often of different heights in the same building, exert no lateral thrust, and are easily supported on columns, without the aid of buttresses, as frequently in the Roman and Byzantine styles. The internal *ensemble* thus presents a light and graceful character, further enhanced by the method of planning, consisting of an “in and out” or cruciform shape, also characteristic (No. 272). Sculptured ornament, of grotesque and symbolic design, covers the whole structure and is bewildering in its richness, leaving little plain wall surface, and differing essentially from European work. The temples were picturesquely perched on mountain tops or nestled in secluded valleys, the Jains valuing rightly the effect of environment on their architecture.

3. **Hindu (or Bráhmancial) Architecture** varies in its three special styles. All three have the small shrine-cell and preceding porches, the same excessive carving and sculpture, which are impressive by this evident tribute of labour to the gods. The principal Bráhmancial Temples, like those of Egypt, show progressive additions of sanctuaries and inclosures, grouped around or attached to the original shrine. Beyond this, the grandeur of their imposing mass produces an impression of majestic beauty. The effect depends almost wholly on richness of surface and outline, rather than on abstract beauty of form, and contrasts very strongly with Grecian architecture. (*a.*) The *Northern Bráhman*, in comparison with the Dravidian style, has a curved pyramidal roof to the “vimana” instead of a storied one, and is without columns to the preceding porch. (*b.*) The *Chalukyan* style is affected by its northern and southern rivals, taking features from each without losing its special character. The star-shaped plan and curved pyramidal tower are in contrast with the storied towers of the Dravidian style. (*c.*) The *Dravidian*

style has the "vimana" or cell crowned by a horizontal system of storied towers, each story ornamented with cells. The "gopuras" or gateways to the inclosures recall the pylons of Egyptian façades (No. 7), and the "choultries" or halls of a thousand columns, are characteristic and akin to the hypostyle halls (page 24).

3. EXAMPLES.

(1.) **BUDDHIST ARCHITECTURE** (B.C. 250—A.D. 750).
The monuments can be divided into :—

1. Stambhas (or Lâts).
2. Topes (or Stûpas).
3. Rails.
4. Chaityas (or Temples).
5. Viharas (or Monasteries).

1. **Stambhas**, or **Lâts**, were columns on which were carved inscriptions, the top being crowned with emblems, such as the elephant and lion, often reminiscent of Persepolitan architecture (No. 13). The best known is the Lât at Allahabad, B.C. 250.

2. **Topes**, or **Stûpas** (Sanskrit *stûpa* = a mound), were mounds erected (a) to commemorate some sacred spot; (b) to contain sacred relics and then known as dagobas or receptacles for relics.

The principal group is that known as the Bhilsa Topes, north of the Nerbudda River, and the best known of the group is the **Sanchi Tope** (B.C. 250—A.D. 100). It is a solid mound of brick-work, faced with stone and cement, and contains the relic near its base. It is 106 feet in diameter, 42 feet high, crowned by a "Tee" or relic casket, and is placed on a platform 14 feet high, surrounded by a procession path, railing and four gateways. An excellent model is in the Indian Museum, South Kensington.

Other groups are at Sarnath (near Benares), Buddh-Gaya, Amravati (remains in the British Indian Museums), and Jarasandha.

3. **Rails** were often used as inclosures to the Topes. They clearly indicate a wooden origin (No. 266 A, F), and were elaborately ornamented with sculpture. The rail and gateways (of which there is a full-size cast in the Indian Museum (No. 266 A)) surrounding the **Sanchi Tope** are the best known, and date from the first century of our era. The height is 35 feet and width 30 feet. The symbolic sculpture is of historic interest: it tells the life story of Buddha, and illustrates the worship of relics, trees, the law, and battle scenes. These gateways are the prototypes of the numberless pailoos (page 642).

INDIAN (BUDDHIST) ARCHITECTURE.



KARLI.
Interior of Rock-cut Cave.

4. **Chaityas**, or **Temples** (B.C. 250–A.D. 750), are all excavated out of the solid rock, thus presenting only one external face. They recall the rock-cut tombs of Upper Egypt (No. 6). The normal type resembles in plan an English three-aisled cathedral with circular apse, containing the shrine, at the end furthest from the entrance. The roofs are hewn to a semi-circular form, and have ribs resembling timber work. In many, the frontal screen of horse-shoe form, through which the only light was admitted, was of wood. The principal groups are hewn in the face of the Western Ghâts, to the east of Bombay, at **Bhaja** (B.C. 250), **Nassick** (B.C. 129), **Karli** (B.C. 78), **Ellora**, **Ajunta** (No. 268), and **Elephanta** (No. 269).

The cave at Karli (No. 267), resembles the choir of Norwich Cathedral in general arrangement and dimensions. It is 126 feet long, 45 feet wide, and 45 feet high. The columns separating nave and aisles are octagonal, with elephant capitals, which support the circular roof.

5. **Viharas**, or **Monasteries**.—The rock-cut examples are in proximity to the Chaityas. The normal type is a central square space, with or without columns, surrounded by chambers for the priests, and occasionally containing a sanctuary for the shrine. In **Gandhara** (North-West India), General Cunningham has opened out some structural monasteries, probably of the fourth century A.D., some of which contain courts for shrines. Their details show Greek and Byzantine influence, the acanthus leaf (No. 44 j), the Byzantine cube-capital (No. 89), and the Corinthian capital being met with.

In **Ceylon** are numerous remains of topes, chaityas and viharas, principally at **Anuradapura**, the capital from B.C. 400–A.D. 769, and **Pollonaruwa**.

(2.) JAINA ARCHITECTURE (A.D. 1000–1300, with later revivals).

The examples mostly belong to the great age of Jaina architecture from A.D. 1000–1300, although a revival took place in the fifteenth century, corresponding to the Renaissance in Europe. The style is generally admitted to have been founded on Buddhist architecture. The monuments, mainly religious, were erected in all parts of India, the principal examples being in the North.

The normal type of temple is a square “vimana” or idol cell, lit from the door only, roofed with a Sikra or Pyramidal storied tower in receding stages, recalling the Chaldean Temples (No. 12 A, c). The cell contains the cross-legged seated figure of the saint. In front of the vimana is a columned hall or portico of varying extent, generally cruciform on plan. In the centre of



268.

AJUNTA.
Façade of Rock-cut Cave.

INDIAN (BUDDHIST) ARCHITECTURE.



269.

ELEPHANTA.
Interior view of Rock-cut Cave.

INDIAN (JAINA) ARCHITECTURE.



MOUNT ABU.
Interior of Dilwara Temple.

the hall is a pointed dome supported on eight columns with bracket capitals and raking struts, the octagon thus formed being brought to a square by the four angle columns which complete the characteristic Jaina plan (No. 266 c). In the larger monuments the temple is placed in an inclosure, against the wall of which the image cells open on to the internal courtyard.

In Northern India the principal monuments are at **Mount Abu** (No. 270), **Palitana** (No. 271), **Girnar** (in the Gujerat district), **Parisnath**, **Gwalior** (No. 272), **Sadri** and **Khajuraho**.

At **Mount Abu**—a granite plateau 5,000 feet above the sea, interspersed with luxuriant vegetation—are two important examples in white marble. That erected A.D. 1032, by **Vimala Sah** (No. 270), has a splendid portico hall, the columns having bracket capitals (No. 266 b), from which raking struts in marble appear to support the architrave. The interior of the dome is sculptured with concentric rings of ornament, having at the base sixteen statues and in the centre a richly carved pendant or ornament, recalling those at Caudebec, in Normandy, or in Henry VII.'s Chapel, Westminster.

The most fully developed building is perhaps the **Temple at Sadri**, on the eastern side of the Aravulli Mountains. Resting on a lofty substructure, approximately 200 feet square, it is surrounded by a range of eighty-six cells, each crowned with a pyramidal roof. There are five shrines, one being central and one at each angle, and four open courts for the admission of light. Twenty domes, 24 feet in diameter, supported on 400 columns, are placed symmetrically in sets of five, forming a Greek cross on plan. The centre one is three stories in height and 36 feet in diameter, and is formed as usual in horizontal stone courses.

The external appearance, with the domes of different heights and the pointed sikras, presents a rich and varied character, with the mountains as a background.

Modern Jaina temples are mostly tinged with Mahometan influence, having bulbous domes and foliated pointed arches. In these the sikra is often absent.

In India the normal type varies, open courtyards containing immense statues sometimes cut out of the solid rock, as the statue, 70 feet in height, at **Sravana Belgula**.

(3.) HINDU (OR BRAHMAN) ARCHITECTURE.

(a.) NORTHERN HINDU (A.D. 600 to the present time).

The normal type of plan consists of the vimana or cell crowned with curved pyramidal roof, and the porch without columns crowned with stepped roof in stories. Each façade has rectangular projections in the centre, which increased in depth as the style

INDIAN (JAINA) ARCHITECTURE.



271.

PALITANA.
The great Chawmukh Temple.

INDIAN (JAINA) ARCHITECTURE.

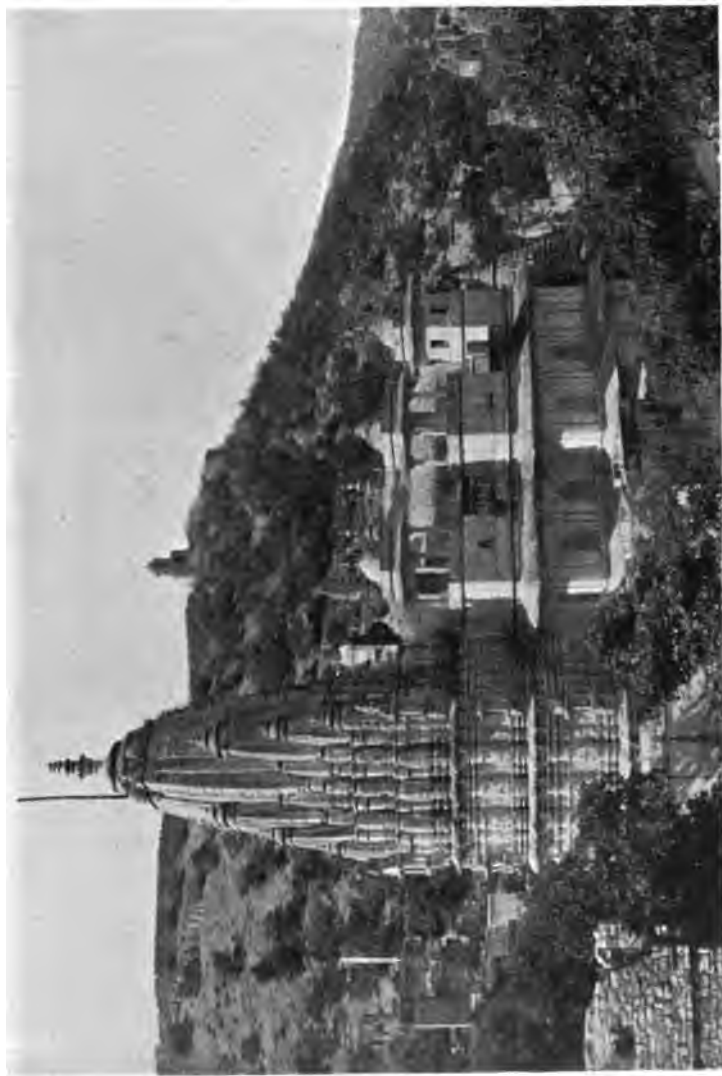


272.

GWALIOR.

The great Sas Bahu Temple in the Fort.

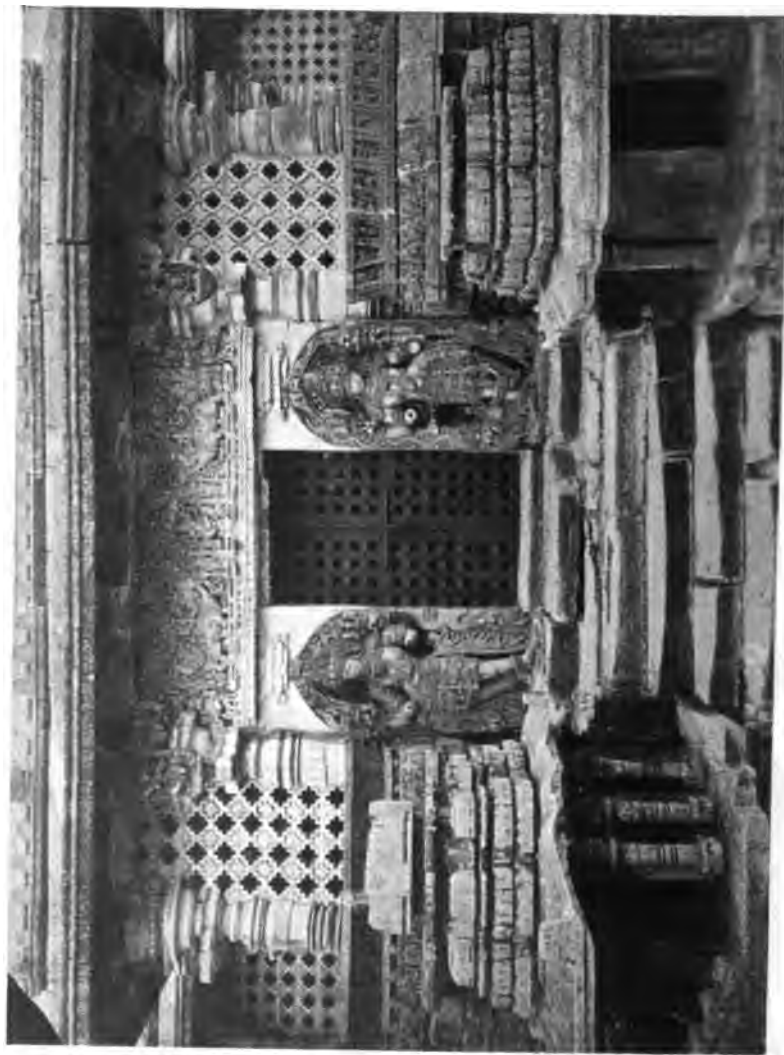
INDIAN (HINDU (CHALUKYAN)) ARCHITECTURE.



273.

UMBER.

The Hindu Temple of Tagat-Sarwan.



developed, until they formed the points of a square on plan. In addition to these two chambers, others were added in more important examples. The large inclosures and gateways of the Dravidian style are wanting. **Orissa**, on the east coast, contains a remarkable series of monuments dating from A.D. 500–1200. The ancient city of **Bhuvaneswar** contains some hundreds of examples. The best known is the **Great Temple** (A.D. 617–657), quoted as the finest in India. It is a four-chambered example; every stone on its façades is carved, the courses being deeply rusticated. The principal vimana is crowned with the usual northern high curved pyramidal roof with melon ornament and finial.

Other examples are at **Kanaruc** (No. 266 E) (the Black Pagoda, ninth century), and **Puri** (the four-chambered temple of **Juganât**, A.D. 1174), the latter being placed in a large double inclosure surrounded by a wall 20 feet high.

In **Dharwar**, on the western coast, are examples in which pillars are employed, as the Temple of Papanetha, A.D. 500, influenced by Dravidian architecture.

Important groups exist at **Chandravati**, in Rajputana (A.D. 600), **Baroli** (A.D. 750), and **Udaipur** (A.D. 1060). At **Khajurâho** (A.D. 954–1000) is a group of thirty important temples, of which that dedicated to **Kandarya Mahadeo** is the most important. It is a two-chambered example, placed on a well-proportioned stylobate, with three rows of sculptured figures, half life-size, nearly one thousand in number. The sikra is enriched by the addition of sculptured representations of itself—a favourite Indian method.

Modern monuments exist at Chittore, Gwalior, Kantonugger (A.D. 1704), and Amritsar (A.D. 1704), the sacred metropolis of the Sikhs.

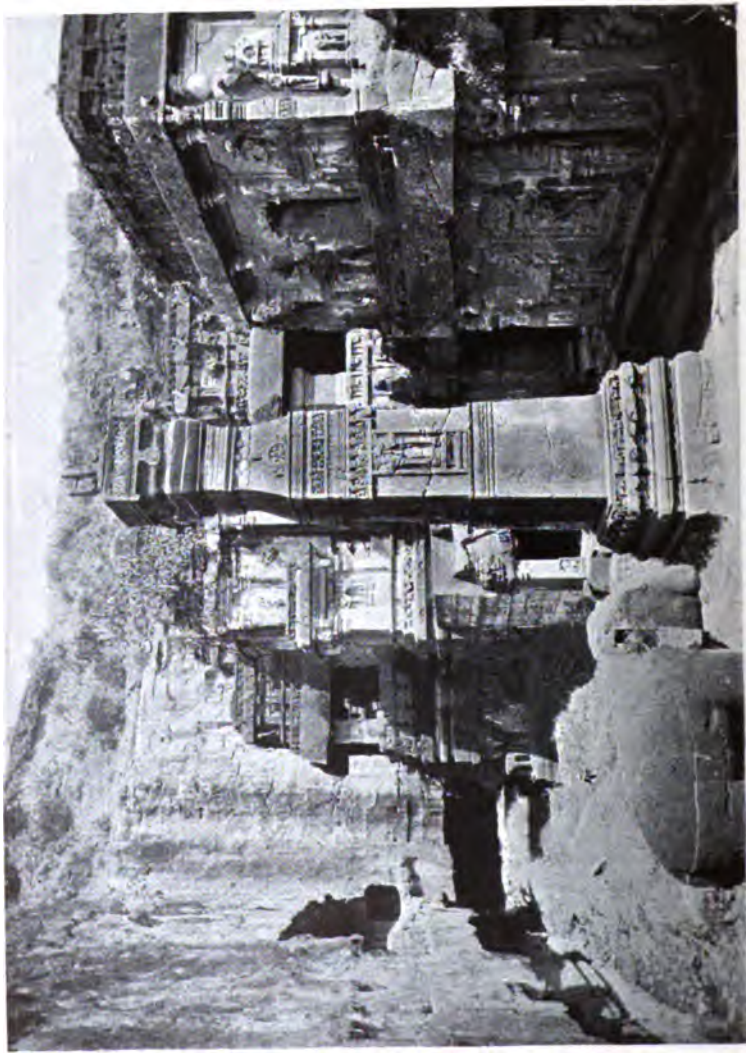
Civil Architecture.—Palaces, tombs, and ghâts (landing places) abound. The ghâts lining the great rivers, such as the Ganges, are typical Indian features; they are used by the Hindus as bathing places, and consist of long ranges of steps, stopped by kiosks and backed by buildings with ornamental façades, used as shelters, or temples.

(b.) CHALUKYAN ARCHITECTURE (A.D. 1000–1200).

The special features are the placing of the temple on a terrace 3 or 4 feet high, the star-shaped plan of the vimana, or idol cell, and the formation of its roof as a straight-sided cone in richly ornamented steps, with crowning vase ornament as in the **Temple at Umber** (No. 273). Elaborate pierced marble slabs are placed in window openings. Walling stones without mortar were also used in certain instances.

The province of Mysore contains the principal monuments, as at **Somnathpûr** (A.D. 1043), **Baillûr** (A.D. 1114), and **Hullabîd**.

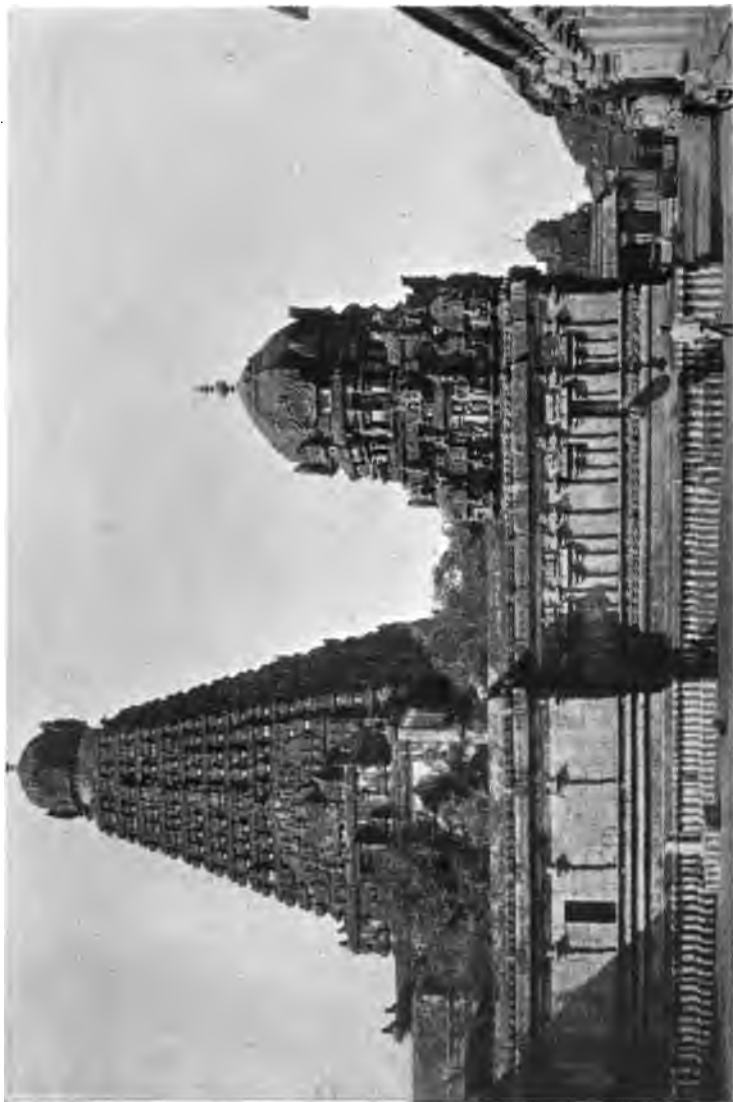
INDIAN (HINDU (DRAVIDIAN)) ARCHITECTURE.



275.

ELLORA.

The "Rath" (Temple of Kailos), showing scarp of rock, an example of a Monolithic Free Standing Temple, cut out of the solid rock, so that external façades are visible.



276. TANJORE.
The great Temple from the N.E., showing the thirteen-storied pyramidal shikhara.

INDIAN (DRAVIDIAN) ARCHITECTURE.



277.

MANDURA.

The West Gateway and Gopura beyond.

INDIAN (DRAVIDIAN) ARCHITECTURE.



278.

TARPUTRY.

Portion of Entrance to the old Temple.

(A.D. 1224), (No. 274). The double temple at the latter place is placed on a terrace 5 feet high, the temples being side by side. In front of each is a detached pillared porch containing a shrine for the idol. The walls are exceedingly rich in sculpture, and have friezes 700 feet long, carved with numerous representations of elephants, lions, horsemen, birds, and bas-reliefs of scenes representing the conquest of Ceylon.

(c.) DRAVIDIAN ARCHITECTURE (A.D. 1350-1750).

Raths.—The rock-cut examples known as “Raths” at **Mahavellipore** (near Madras), and **Ellora** (A.D. 750-950), are peculiar (No. 275). They differ from other rock-cut examples, being monolithic free standing temples, the surrounding rock being cut away so that external façades are visible.

Temples.—The normal type, as in the Jaina examples, has a square vimana to contain the image of the deity, and is crowned with a many-storied pyramidal roof; in front is a “mantapa” or porch (No. 276). In addition are the “choultries” or halls of 1,000 columns, placed close to the Temples, and the characteristic “gopuras,” or gate pyramids (No. 277), forming entrances to the inclosures which usually surround the shrines. In conjunction are planned the shrines, lakes (or tanks of water for religious purposes), and flights of steps; such are often grouped with little regard to symmetry, and inclosed by a high wall, as in Egyptian temples.

Tanjore (fourteenth century), with its thirteen-storied highly-enriched pyramidal sikra (No. 276), **Mandûra** (A.D. 1623-1645), with its celebrated Gopura (No. 277), and Choultrie, 333 feet by 105 feet, and columns with life-sized sculptured figures attached; **Seringham** (seventeenth century), with its fifteen great gopuras, **Tinnevely**, with its double temple and hall of 1,000 columns, **Conjeveram**, **Vellore** (A.D. 1350), **Tarputry** (No. 278), and **Chillambaram** (seventeenth and eighteenth century), are the best known monuments.

4. COMPARATIVE.

Note.—In order to assist the student, the analysis of the three styles—Buddhist, Jaina, Hindu (or Brâhman)—is taken in one table.

A. Plans.

(a.) *Buddhist.*—The remains of Buddhist Chaityas (Temples) are all hewn out of the rock, and therefore have only one external façade. In plan they resemble Christian Cathedrals in having three aisles formed by two rows of piers; the sanctuary, around which the aisle is carried, is semi-circular.

The viharas (or monasteries) are also rock-cut. They consist generally of a central hall surrounded on three sides by cells for the priests. In later and larger examples, columns are introduced in the central space to support the rock overhead. In the most important examples the sanctuary is placed in a special apartment, and provided with a screen of columns as at Nassick.

(b.) *Jaina*.—Temples owe much of their attractiveness to their environment, by being picturesquely grouped on mountain tops or in wooded valleys. In plan they consist of a square cell containing the image of the Jina, roofed with a high curvilinear pyramidal Tower called a "Śikra." In front was a pillared portico, crowned by a pointed dome usually supported on eight pillars forming points of an octagon, and brought to a square by inserting four angle columns (No. 266 c). The columns are extended so as to make the whole structure cruciform on plan, which is apparent externally.

The planning of the dome on the octagonal base causes the width of the central nave to the aisles to be in the proportion of 10 to 7. A somewhat similar treatment has been adopted in the successful interior of S. Stephen, Walbrook (No. 256).

In important examples, the temple is placed in a great open court, round which cells are planned. At Girnar there are seventy of such cells, each containing a cross-legged statue of the Jina, to whom the Temple is dedicated.

(c.) *Hindu* (or *Brāhman*).—The Hindu Temples are similar in plan to the Jaina temples, with local differences—for instance, Dravidian Temples have, in addition, the characteristic choultries, or halls of 1,000 columns, and are generally surrounded by a wall, inclosing lakes or tanks of water for priestly purposes, while Chalukyan Temples are usually star-shaped on plan.

B. Walls.—These were constructed principally of the granite, stone or marble with which the country abounds, the massive blocks being sometimes laid without mortar. Plain walling seems to have been avoided, and sculpture is employed in a bewildering and confusing way (see Ornament, page 632). The characteristic Eastern treatment of decorating with sculptures the whole surface of the walls is employed in all three styles.

In the Dravidian style the gopuras or gate pyramids resemble, in their massiveness only, the pylons of the Egyptian Temples (No. 7).

c. Openings.

(a.) *Buddhist*.—In rock-cut examples, the horseshoe form occurs on the façade (No. 268), forming, as it were, one great eye, and being the only opening for light. Within this arch was usually an open decorated framework of wood, probably used as a screen to the glaring Eastern sun; thus the subdued light was

thrown on the shrine from behind the spectator, producing a favourable effect of light and shade on the close-set columns of the interior (No. 267).

(b.) *Jaina*.—Openings are normally square-headed. Domes, when employed, were formed of horizontal courses, as in early Greek architecture (No. 15 A). Such a system was necessary in the case of domes supported on slender columns, which could sustain no outward thrust. In their pillared porches, horizontal stone architraves rested on the bracket capitals, and a characteristic Eastern feeling was produced by the stone struts supporting them (No. 270), features which were evidently derived from a timber form (No. 266 B).

An extension of the bracket capital is sometimes applied to walls, lintels being supported at intervals by detached brackets built out in horizontal courses.

The struts, already mentioned, were occasionally filled in with ornament, thus forming a triangular-headed opening (No. 271).

(c.) *Hindu*.—Flat-headed openings are the usual type, but variations are caused in roofs by the use of bracketing shafts supporting purlins of stone, on which inner brackets were placed, thus gradually reducing the span, till stone slabs could roof the apartment, as at the Dravidian temple at Chillambaram.

The Chalukyan buildings have pierced window slabs, as at Baillūr and Hullabīd (No. 274). Such are formed in star-shaped patterns ornamented with foliated bands or with mythological subjects. These slabs, filling in the whole opening, are a great contrast to other styles, being somewhat similar, however, to Byzantine and Saracenic buildings.

D. Roofs.

Buddhist.—In the early rock-cut chaityas, semi-circular roofs are excavated in the rock and ornamented with wooden ribs or stone imitations of them (Nos. 267 and 268).

Jaina.—The sikra, or stone roof, which crowned the idol-cell had a high curved outline crowned with a melon ornament and finial (No. 271). Such a curved outline, Mr. Fergusson suggests, may have been produced by following the outline of an internal pointed dome, formed with slabs of stone in horizontal courses. Jaina porches are crowned with (1) roofs formed of flat slabs of stone, or (2) pointed domes formed in horizontal courses.

(1.) The flat slab roofs were evolved from the simple square slab of stone resting on architraves supported on four columns. Larger spaces were roofed by using a succession of triangular slabs as a base for the original square slab to rest on (No. 266 c). Still larger spaces were roofed by the insertion of two extra columns on each face to support the long architrave, and making twelve columns in all to each compartment, the intermediate columns forming an octagon on plan.

(2.) The pointed Jaina dome seldom exceeds 30 feet in diameter. It is invariably formed in horizontal courses (compare the Treasury of Atreus at Mycenæ, No. 15). Such domes, if of any size, are of necessity pointed or conical in section (No. 265 D, E), so that a single stone can crown the top. When placed on the octagonal plan as indicated above, the triangular portions (or pendentives from the octagon to the circle) are formed by a circular stone cornice supported at the re-entering angles by projections from the capitals (No. 270). The bearing of the architrave was apparently lessened by the use of bracket capitals and struts, although it is doubtful if these have any constructive value (Nos. 266 B and 270).

The decoration of such domes followed the horizontal lines of the construction, the ornament being arranged in concentric rings, the central or top stone forming a pendant.

Hindu.—Dravidian examples have the roof covering the vimana of the storied pyramidal type (No. 276), normally carried to a considerable height and carved with representations of itself along each well-defined story.

Chalukyan examples have the towers either of the storied Dravidian type, following the curvilinear outline of the Northern Hindu examples, or form a straight-sided cone arranged in steps.

E. Columns.—Indian columns are most characteristic features, and are unlike those in any other style. No systems of simple well-known types existed, as in Greece or Rome (No. 38). The origin of their form is unknown, but it seems certain that they come of a wooden prototype. The shaft is as much ornamented as the capital and base (No. 266 L). The bracket capital (No. 266) is a characteristic Indian feature taking a variety of forms.

Buddhist columns are often octagonal on plan (No. 267). In the great rock-cut Chaityas at Karli, Bedsa and elsewhere, they are stumpy, closely set together, thus screening the wall behind, which, of course, had no openings. They thus gave the necessary light and shade to the interior, as did the columns to the exterior of a windowless Greek temple. The numerous forms of capitals, resembling in certain instances the Assyrian and Persepolitan examples, are bewildering. Sculptured lions, horses, or elephants, supporting men, women, and the "chakra" or Buddhist wheel occur, as at Bedsa. In others, as at Karli, torus or Dutch cheese-like mouldings ornamented with palm leaves occur under a capital of a coarse Roman-Doric type (No. 269).

In North-west India, in the Gandhara district, Greek or Byzantine influence produced capitals with delicate acanthus-leaf carvings.

Jaina.—Columns are a special feature and exhibit great variety of design. The capitals are of the "bracket" type, probably

derived from a timber original. Sometimes, as at Mount Abu (No. 270), they are superimposed, the upper ones supporting an architrave which is upheld in the centre by stone struts resting on the lower capital.

Hindu.—In the Dravidian choultries, there was great scope for the inventiveness of the Hindu craftsman. The capitals are of the bracket type, and in some instances not more than two columns in a building are alike.

Some, as at Mádura, have life-sized figures of saints, or Yalis (weird lion-like monsters) attached to them (No. 266 c), forming a contrast to Greek caryatides (No. 44 m). In other cases, a compound pier of a sturdy and light column is employed (No. 266 L).

F. Mouldings.—Normally these are of a bulbous swelling outline, those to the columns often lacking refinement. A form made by overlapping rectangular slabs is frequently used in the bases and capitals of columns and dagobas. In other instances, as at Bedsa, a semi-circular open-work moulding, recalling basket-work, is employed. The plain torus is used, and the double-convex shape into which the cross pieces of the "rails" are cut, are used as deep horizontal bands of ornaments, taking the place of mouldings proper (No. 266 F).

G. Ornament.—This is principally confined to sculpture carried out with a profuseness unknown in other styles. Executed principally in hard stone, and having little plain wall surface to frame it, it forms a monument of patient labour, perhaps unequalled.

The sculpture is so bound up with the peoples' religion and mythology, of which indeed it forms the mirror, that the two cannot be considered separately. In Jaina architecture, each of the twenty-four Jinas (see Religion, page 607) had a distinctive sign which was utilised by the sculptors. The trident, shield, and chakra (or wheel), the "rail" ornament (copied from the Sanchi tope) and imitations of window fronts and façades are also repeated on the fronts of the early chaityas, as at Bedsa, Nassick, and elsewhere.

A most characteristic feature was the representation on a façade or tower of numerous small carved representations of itself. This method was also used in Assyria, and the remains often enable a fanciful restoration to be made.

Painted decorations or frescoes were often employed, as at Ajunta, the walls of the cave being left plain for the purpose.

The use of sculptured figures as a means of decoration was a later phase.

The evolution of the sculptured umbrellas surmounting the Dagoba (or shrine) is interesting as being the prototype of the nine-storied pagodas of China. On the Gateways at Sanchi (a

plaster copy is at the Indian Museum, South Kensington) are represented legendary events from the life and religion of Buddha, the worship of trees and relics, and warlike scenes (No. 266 A). The three, five, or seven-headed Naga or serpent is frequently used. Besides the animals already mentioned, others such as horses, lions, "hansas" (sacred geese), form favourite subjects with Buddhist sculptors, and are a striking contrast to the *motifs* of Mahometan sculpture (page 680).

Note.—In further India (or Indo-China), as in Burma, Siam, Java, and Cambodia, are temples, monasteries and pagodas, many of which are of great size and importance, but of which space does not admit of more than passing reference.

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CHINESE AND JAPANESE ARCHITECTURE.

"See what a love shell,
Small and pure as a pearl.

* * * *

Frail, but a work divine,
Made so fairly well,
With delicate spire and wall,
How exquisitely minute
A miracle of design."

I. INFLUENCES.

i. Geographical.

The Chinese Empire — comprising China proper, Thibet, Mongolia, and Corea—is larger than the whole of Europe. It is for the most part mountainous, but possesses four great trading rivers by which merchandise is carried, facilitating internal commerce. In addition a network of canals for irrigation and navigation is spread over the low-lying provinces, and these, with the navigable rivers, form the principal highways of China. The "Grand Canal," extending from Tientsin to Hangchow, is 600 miles in length. The coast has excellent harbours, which must have assisted the intercourse with India and Assyria, and the consequent influence of their architectural forms. The Chinese pagoda was a direct imitation of an Indian prototype (page 632), or may have been derived from the pyramidal many-storied buildings found in lower Chaldæa.

Japan presents many points of resemblance to Great Britain: both have highly indented coast lines with good harbours; both are insular empires well situated for commerce and lying opposite populous continents; both are at the head of great oceanic waterways, the one of the Pacific, the other of the Atlantic; and both are warmed by ocean currents producing equable temperatures.

ii. Geological.

China.—The abundance of metals, coal, salt, iron, and copper, have always made China one of the richest of countries.

China, as primitive India, employed wood for building; such was rendered possible by the vast forests of bamboo and pine which existed in ancient China. Peking, which was first made the Imperial capital about A.D. 1260, suffered severely from earthquakes in 1662 and 1731, when important buildings were wrecked. Brick-making is considered by many to have been introduced from the West, in imitation of those found in the ruins of Mesopotamia.

Large beds of porcelain clay are found in the province of Che-kiang and elsewhere. In city walls the brick is usually about 18 inches long, and in buildings a small grey-colored brick is often used. Tiles, plain, glazed, and colored, are almost exclusively used for the roofs, yellow being the Imperial color. Stone is used for bridges, gateways and public works, and marble for balustrading around tombs and important buildings.

Japan.—The prevalence of earthquakes has favoured wooden construction, in which the Japanese exhibit scientific ingenuity in the framing together of the various parts.

Stone in Japan is unstratified, hence it is frequently used in polygonal blocks, particularly for the lower part of walls, on which is erected the upper wooden construction.

Forests occupy four times the area of the tilled land, with a greater diversity of trees than any other country in the world; bamboo is largely used in house construction.

iii. Climate.

China.—The geological formation of the mountains, which run east and west, direct the sea winds which moderate the temperature. North China has a short but frosty winter and warm and rainy summer. During the monsoons very heavy rains occur, which influenced such features as the widely projecting roof with steep surfaces admitting of the easy discharge of rain-water. Roofs are turned up at the eaves to admit light without the heat of the sun (Nos. 281 and 283).

Fires being principally used for domestic purposes and not for comfort, chimneys are unimportant features and seldom provided, the charcoal or wood fire being allowed to eject its fumes into the cooking apartments.

Japan.—Houses, where possible, face the south, as a protection against cold. The deeply projecting eaves protect from the summer sun and the high inclosing walls of courtyard against the winter wind. In summer the moveable casement windows and partitions forming the fronts of the houses, and offering little resistance to the penetration of heat, are removed, leaving them entirely open to the breezes.

Asia, all the Mongul princes as far as the Dnieper were tributary. The Emperor undertook public works and patronized literature. It was during his reign (A.D. 1260) that the Persian workmen introduced the art of making blue and white porcelain.

The Ming Dynasty (A.D. 1368-1644).—Nankin, the capital, afterwards changed to Peking. Japan invaded Corea in 1592.

The Manchu Tartar Dynasty (A.D. 1644 to the present day).—The shaved head and pigtail are emblems of Tartar sovereignty. At the beginning of the seventeenth century the German Jesuits influenced the studies of the first Emperors. Kang-he (A.D. 1661-1721) added Thibet to the Empire and published the Dictionary of the Chinese language. Keen-lung (A.D. 1735-1795) invaded Burmah, Cochin-China, and Nepaul, and crushed the Mahometan rebellion. He received Lord Macartney as first ambassador of George III. In 1840 war was declared by England against China; this marks the period of the influence of European intervention. In 1873 the foreign ministers obtained the right of audience with the Emperor.

Japan.—The Emperor Zinnu, B.C. 660, was a contemporary of Nebuchadnezzar. From that time onward the government of the country was undertaken by the Mikado, or spiritual Emperor, the Shogun, or temporal Emperor, being Commander-in-Chief. Till A.D. 1543 Japanese history is purely local, but in that year the Portuguese landed and commenced trading, and in 1549 S. Francis Xavier introduced Christianity. In 1638 Christianity was interdicted and isolation from foreign countries was effected. In 1854, however, after an isolation of over 200 years, treaties of commerce were made with foreign nations. This period marks the commencement of the influence of European art on Japan. In 1868 the present Mikado, the 122nd of his line, suppressed the Shogun and reigned as supreme constitutional Emperor.

2. ARCHITECTURAL CHARACTER.

China.—The architecture is a faithful index of the civilization of the country, which seems to have been stationary from the earliest times.

Throughout its course, the architecture appears to have been subject to little progress, and it has exerted but little influence on other styles. Bright coloring forms an important part, applied permanently in the shape of glazed tiles or majolica work. The architecture of China and Japan is pre-eminently one of wood—cedar, pine, chesnut or bamboo—which is framed up to receive the sliding screens which run in grooves (No. 281).

The Pagodas, or towers, in receding stories, with gaily-colored curved roofs to which bells were attached, and adorned

with figures in high relief at the angles, form a characteristic class of structure (No. 280).

No distinction is made between civil and religious architecture. In China, the temple is only a better kind of house, provided with an altar.

Japan.—The Japanese buildings have a special character of minuteness, both in architectural features, carving, and decoration, contrasting forcibly with those of other nations—as Egypt and Rome—in which the great idea was vastness of size and grandeur of proportion.

Japanese buildings have a quality of refinement and delicacy, and their wooden constructions are framed together with such artistic skill as to render them akin to joinery (No. 283).

Chinese and Japanese architecture is especially notable for curved sloping roofs, forming a contrast with that of Egypt and India, where flat terrace roofs predominate. The projecting roofs supported on a succession of small brackets form a most striking feature, being ornamented with dragons and other fabulous animals.

The accessories of Japanese Temple architecture, such as the gateways, belfries and font sheds, form an important setting to the main structure, as do also the quaintly laid-out gardens with their summer-houses, rustic arbours, and fishponds.

3. EXAMPLES.

Temples and Monasteries.—The Temples of Heaven and Earth (Agriculture) (No. 281 D) at Pekin, have been described by the late Mr. Simpson. The former contains two altars with sloping roofs in stages, and is placed in an open space, one mile square, surrounded by a triple inclosure in which are the priests' lodgings. (For normal type of temple see page 646.)

In the plains of China such buildings are usually planned on symmetrical lines. In mountainous Japan, use is made of steps and terraces, wooded backgrounds and long rows of stone or bronze standard lanterns to produce a picturesque effect. Accessory buildings, such as pagodas, a stage for sacred dances, and storehouses, are grouped around.

Palaces.—In the past, as capital succeeded capital, palaces for the Emperors and officials have been erected. Such were often of great extent. The Summer Palace at Pekin (destroyed 1860), of which a Pavilion is shown in No. 281 F, was an important example. It covered twelve square miles and contained some thirty residences for the Emperor and his ministers, among these the "Hall of Audience," 120 feet long, 42 feet wide, and 20 feet high, formed the principal apartment. The whole group was set among pleasure gardens, lakes and grottoes on a magnificent scale.

CHINESE ARCHITECTURE.



CHINESE ARCHITECTURE.



280.

SHANGHAI.

A typical Chinese Pagoda.

F.A.

T T

Pagodas, derived from Indian prototypes, are characteristic. They vary from three to thirteen stories in height, a usual number being nine (No. 280). They are constructed in various materials, from wood to cast iron, are solid or hollow, the latter having staircases leading to each floor level. Pagodas had formerly a religious significance, but those erected latterly are secular in character, sometimes being monuments of victory. They are usually polygonal in plan, thus enabling the junctions of the roofs in each story to be elaborately ornamented. The *Pagoda at Nankin* (destroyed in 1856), called the Porcelain Tower, was a well-known example (No. 281 E). It was an octagon 40 feet in diameter and 200 feet high. The eaves of the roofs to each story curled upwards, and from the angles bells, numbering 150, were hung. It was built of brick, coated with colored slabs of green glazed porcelain, on which its effect mainly depended. It contained about 2,000 images. Pagodas are distributed in considerable numbers over the country. The *Tung-chow Pagoda* (a thirteen-storied example), the *Tang-chow Pagoda* (a nine-storied example), both at Peking, the "*Flowery*" *Pagoda*, Canton, the *Hang-chow Pagoda*, the *Sao-chow Pagoda* (nine stories), and others at Shanghai, Ningpo, and Nankin, are well-known. A good example is in Kew Gardens, and there are many models in the Indian Museum, South Kensington.

In Japan the Pagodas are mostly five-storied, square in plan, and about 150 feet high; they are attached to the important temples. The lower story contains the images and shrines, the upper ones serving as "belvederes." They were introduced with Buddhism from China, but those now standing mostly date from the seventeenth century; the upper stories have projecting roofs with bracketed cornices supporting bronze bells.

The **Pailoos** of China (No. 282) are a common feature, and have a family resemblance to the Torans of India as the Sanchi tope (No. 266 A), and those of Japan. They were erected as memorial arches in memory of deceased persons, generals, philosophers, or of virtuous widows. They are constructed of stone, or more frequently of wood, and have one or three openings, formed by posts supporting horizontal rails bearing an inscription and crowned with bold projecting roofs, covered with gaily-colored tiles.

Bridges are important structures in a country abounding in rivers and canals. The greater proportion have piers supporting arches formed, not of radiating voussoirs, but with horizontal courses, the slabs often measuring 5 feet in length, 2 feet wide, and 6 or 8 inches in thickness.

Tombs, in consequence of the great reverence for the dead, are finished with care, and have respect paid to them. They are either conical mounds cut in the rock, or structural. Those of

CHINESE AND JAPANESE EXAMPLES.



CHINESE ARCHITECTURE.



282.

A Pailoo.
A typical structure erected as a Memorial.

the Ming Dynasty (A.D. 1368-1644), to the North of Pekin, are entered through triumphal gateways of white marble and an avenue, a mile in length, of large monolithic figures, thirty-two in number, and 12 feet in height, representing camels, horses, priests, elephants, lions, and griffins. Each of the thirteen tombs consists of an earthen mound, half-a-mile in circumference, and supported by a retaining wall 20 feet high, and seem founded on such monuments as the Sanchi tope in India. Family tombs are frequently of horseshoe form in plan, cut into the hillside, with mythical animals guarding the entrance.

Houses are chiefly of wooden or glazed porcelain construction, formed to a large extent of moveable partitions which slide in framework. There is generally only one floor. The roofs are of steep pitch, with boldly projecting eaves, and have highly ornamented ridges of colored and glazed tiles with the ends turned up, or are finished with grotesque animals or fantastic ornaments. The framing is effected in bamboo and other woods, and is frequently painted red, green, or blue. The houses owe much of their character to their environment, being placed in gardens arranged to suggest some natural landscape, with fountains, artificial rocks, woodland scenery, lakes, flower beds, hanging plants, bridges spanning watercourses and stepping stones, which are seen in the models at the Indian Museum at South Kensington.

Town houses of any importance are made up of a collection of isolated pavilions surrounded by small gardens. Three principal divisions occur, viz., (a) The vestibule or porter's lodge, giving on to the street; (b) the audience chamber and family rooms; and (c) the kitchen and servants' rooms (No. 281 A).

In Japan the employment of wooden houses and the consequent fear of fire has had much influence in producing the detached character which some of the larger examples possess. In the plan of a middle-class dwelling (No. 281 J, H), the general arrangement is shown. In such an example the walls are constructed of slight vertical posts and horizontal beams covered with weatherboarding. The portion giving on to the verandah has sliding shutters between the posts. The internal partitions are formed of paper slides, 6 feet high, with plastered or wooden frieze over.

Tea Houses (No. 281 K) are characteristic institutions, generally of wood construction, inclosed by thin shutters readily removed during the summer. They usually have verandahs and are set in specially designed gardens.

Engineering Works. — Canals and bridges have been extensively carried out. The *Great Wall* (B.C. 214) is 1,400 miles long, 20 to 30 feet high, and 25 feet thick. It is formed with a battered face and carried over mountain heights, down

deep gorges, across lofty tablelands and rivers, like a huge snake turned to stone.

Other buildings are public baths (No. 281 L, M), restaurants, hotels, and theatres.

Cities.—In China cities are of four classes, and are mostly quadrilateral or circular, with moats encircling the walls, and principal gates facing cardinal points. Peking is a triple city: the outer is the Tartar city having an inclosing wall sixteen miles long, within that is the Imperial city, surrounded by a wall nine miles long, and the innermost city contains the Imperial Palace (No. 279). The walls surrounding these cities are of immense size and vary from 30 to 60 feet wide at the top.

4. COMPARATIVE.

A. Plans.

China.—The normal type of temple consists of three buildings parallel with and entered through each other. Such are approached by massive flights of steps, gateways and bridges. The larger proportion are lofty one-storied buildings with open-timbered roofs.

The Buddhist temples resemble those of India, consisting of successive open courts and porticos, and in addition, kitchens, refectories and sleeping cells for the priests.

Japan.—The Sinto temples are distinguished from the Buddhist by having in front a "toran" or gateway consisting of upright pillars of granite, supporting two or more transverse beams in the same material. It is considered necessary to pass under such gateways for prayers to be effectual.

In houses the sizes of all living rooms are regulated by the Japanese mats (tatami) with which the floors are covered; and which always measure one "ken" (six feet) by one "half-ken" wide, each room being some multiple of these (No. 281 J, M). The Royal mats are 7 feet by 3 feet 6 inches.

The houses of both countries owe their bright and cheerful character chiefly to their setting, being placed in gardens with hanging flowers, fountains, rockery, and flights of steps (page 645).

The Pagodas were mostly octagonal on plan.

B. Walls.

China.—Stone is employed for more important edifices, but ordinary building materials are brick (used principally for the base of walls) and wood. Most Chinese buildings, even when of wood, are raised on a stone platform to protect the building from damp. Brick is sometimes finished with a glazed, colored surface, or the walls have a facing of glazed tiles or majolica. Walls are often constructed hollow, as described by Sir William Chambers, thus saving material and effecting a more equable temperature in the houses.

The "taas" or "pagodas" are of brick, covered with highly-colored and glazed tiles or marble. Such structures vary from three to nine stories, each being reduced in height and provided with projecting roof (Nos. 280, 281 E).

The verandah, or portico on wooden columns, is characteristic of the style and a special feature of the dwelling-houses.

Japan.—Most of the houses are of wood-framing and card-board, which is safer in the frequent earthquakes than stone or brick.

Temples (No. 281 G) have walls formed of timber posts, and rails dividing the walls into regular oblong panels, frequently moveable. These receive either plaster, boarding, or carved and painted panels. Light is introduced principally through the doorways.

An elaborate system of cornice bracketing crowns the walls forming one of the most characteristic features of Japanese buildings (No. 283). Immediately above the pillars a highly decorated frieze-like space occurs, over this the bracketing consists of a series of projecting wooden corbels, supporting heavy horizontal beams and rafters with decorated faces, the total projection of the roof beyond the wall often being as much as 8 feet. The disposition of the pillars, posts, brackets and rafters forming these cornices appears to be according to well-known modules of measurement. Compare the canons laid down by Vitruvius and the Renaissance architects of Europe.

Optical illusions are sometimes corrected by cambering the underside of beams (*cf.* Greek Architecture, page 51).

c. Openings.

China.—Windows are square-headed, induced by the rectangular framing of timber posts, or lashing together of bamboos. They are frequently filled in with the lining of the oyster shell, which is as transparent as talc, and admits an effective, subdued light. Glass is seldom found in the native windows, paper being often used as a substitute.

Doorways are of similar form varied in outline by the use of fretted pendants from the horizontal timbers.

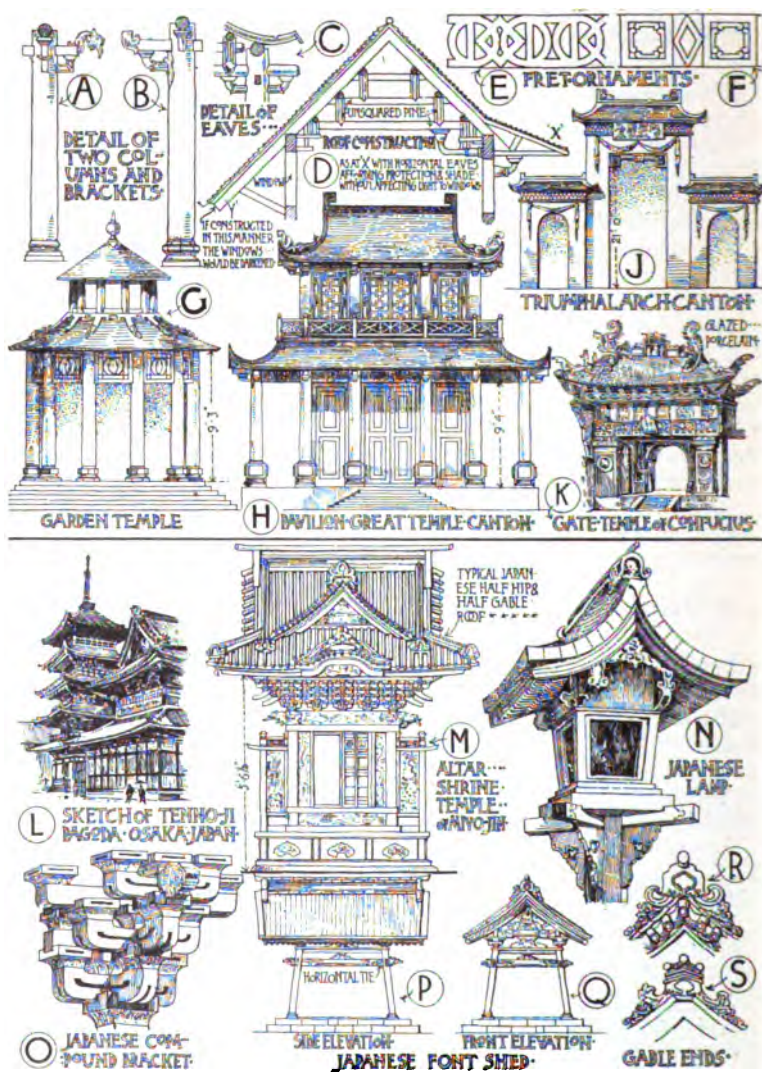
Japan.—Owing to the great projection of the roofs and the lowness of the openings, direct light from the sky is seldom obtained, the light of the interior being reflected from the ground (No. 281 G). The windows are either filled in with trellis work or bars on the outside, and with wooden shutters and paper slides on the inside.

In connection with Temples are numerous gateways, one or two storied, the latter having muniment rooms over.

d. Roofs.

China.—The framing is of open timber construction (No. 283 D). Such roofs appear to be supported independently of the inclosing

CHINESE AND JAPANESE ORNAMENT.



walls, being erected previously, and supported on wooden posts (No. 281). The angles are usually turned up sharply and ornamented with fantastic dragon ornaments (Nos. 281 F and 283 H, J, K). Such a form shelters the house from the direct rays of the sun while admitting daylight, and throws the rain-water clear of the walls. The ridges have elaborate ornamental cresting (No. 283 R, S).

The roofs are mainly covered with enamelled and colored tiles of S shape (pan-tiles), placed in beds of mortar, which is also used to form cover-joints as a protection from the action of driving winds.

The method of forming the trusses supporting the tile work is by a system of rigid rectangles (not triangles as in Europe), formed of bamboos held together by wooden tenons. The weight of the roof acts vertically, no oblique thrust coming on the walls (No. 283 C).

The roof is the principal ornament of the building which it shelters, and contrasts very strongly with the Greek, Roman, and Renaissance styles, in which there is often an evident endeavour to hide the roof. It is considered a sign of dignity to possess several roofs one over the other, which serve to protect the interior of the house from the extremes of heat and cold.

Some derive the hollow curved form of roof from a "tent" origin; others, with greater reason, think the form resulted from the use of bamboos, which bend when weight is put upon them.

The connection between the roof and the pillars which sustain it is often effected by brackets, which give support and strength.

The soffits are usually divided into square or octagonal coffers by means of raised ribs with brass socketings at their intersection.

Japan.—The gable ends (No. 281 G) often have cusped barge-boards with carved pendants. A curious form of roof is produced by terminating the upper portion of the main roof in a gable vertically above the end wall, but continuing the lower portion round the ends in a hipped form, thus presenting a roof which is half hip and half gable (No. 281 G). The covering is usually of flat and roll tiles placed alternately, the ridge and hip crestings consisting of several layers of tiles in mortar crowned with large moulded tile capping (No. 283 M, N, R, S).

E. Columns.

China.—The lightness, strength, and convenience of the bamboo caused it to be used in preference to squared timbers, its nature not allowing it to be squared. It consists of a hard outer casing of great strength and an interior of pith which is of no constructive value. Such a wood was of importance in influencing a system of construction (Nos. 281 A and 283 A, B, C, D) quite different from the framed European truss.

The slender columns often consist of plain circular posts with

moulded base, without capital of any kind, but provided with bracketed tops of various design (No. 283 A, B, G). Such a treatment differentiates Chinese architecture from most others, in which the capital forms one of the most important of architectural features, giving the date and style of a structure.

Japan.—According to Mr. J. Conder, the intercolumniation is regulated by a standard of about six feet, called a "Ken," which is divided into twenty minutes, each minute being divided into twenty-two seconds.

Pillars are square, round, or octagonal; the round ones being often reeded and the square ones panelled. Sometimes they are inclined inwards, instead of being vertical.

F. Mouldings.

These appear to be little used. Their place was taken by the colored glazed tiles, projecting ends of timber rafters, and the like. The bases to columns are often of moulded bronze, consisting of cyma and ovolo, or cavetto and ovolo (No. 283).

G. Ornament.

China.—The ornament faithfully expresses the national characteristic of oddness. All Eastern nations appear to have a natural instinct for harmonizing color, and to this the Chinese are no exception.

Colored ornament is applied to the buildings in the form of enamel glazed tiles, painted woodwork, and landscape and figure subjects. It is in the minor arts that the Chinese and Japanese excel, in their silk and cotton manufactures, in their carvings in wood and ivory, and their vessels of porcelain.

The umbrella is an old symbol of dominion and power, and the triple umbrella is one of the most important insignia of the Emperor of China.

Japan.—The colored and carved panels forming the inclosing walls, the elaborately formed and colored projecting eaves to the roofs, and the *ramma* or pierced ventilating friezes under the cornices are characteristic. In these, panels in high relief frequently occur, representing such subjects as the chrysanthemum and jay, or the stork and pine tree.

For ornamental purposes, brass caps, usually gilded to preserve them from corrosion, and incised in patterns, are fixed to the ends of projecting timbers, to the junctions of beams and pillars, the bases and neckings of posts, and on doors to hide the connection of the stiles and rails, and the open joints due to shrinkage. Embossed gilt metal work is also liberally applied to the gable boards and pendants.

Color decoration, introduced, it is said, from China in the sixth century, is very generally applied to the inside and outside of

Japanese Temples. The beams, brackets, carvings and flat spaces are picked out in bright coloring and gilding, the colors being blue, green, brown, purple, madder, and vermillion. The wall paintings are generally on a gold ground, and represent animals, birds and flowers. Supporting pillars are usually black, red, or gold.

Among subjects for decoration, birds of bright plumage—as cranes, peacocks, pheasants, ducks—flowers, water-plants, trees, bamboos and lions are the most frequent, combined with weird and grotesque demons derived from earlier Indian sources, and resulting in a curious mixture of conventional and realistic forms.

The Japanese are also renowned in pottery, lacquer ware, ivory carving and inlaying.

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ANCIENT AMERICAN ARCHITECTURE.

THE architecture of Central America is so unimportant in its general aspect that a few words will suffice to explain its character.

In **Mexico** an Aztec architecture from the twelfth century A.D. to the Spanish conquest in the sixteenth century existed quite apart from and uninfluenced by all other styles, yet bearing a general resemblance to some of them.

The temples had a base like an Egyptian pyramid, but were flat-topped, the summit being reached by flights of steps on all sides, or they were formed as storied terraces. On the top was the temple proper with a sloping roof. Examples exist at Cholula near Mexico, at Palenque in Yucatan, and elsewhere.

The Palaces, as at Zayi and Uxmal, appear to have derived their features and ornament from timber originals, rising in receding terraces and roofed with slabs of stone forming horizontal arches as in early Greek work at Mycenæ (No. 15).

In **Peru**, dating from the tenth century, are remains of flat-roofed buildings erected by the Incas, probably derived from mud originals, and executed in polygonal blocks of Cyclopean masonry of regular courses, similar to early Etruscan work (page 119).

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284.

SARACENIC ARCHITECTURE.

“ That haze which seems
 Floating about the panel, if there gleams
 A sunbeam over it, will turn to gold,
 And in light graven characters unfold
 The Arab's wisdom everywhere ; what shade
 Marr'd them a moment, those slim pillars made,
 Cut like a company of palms to prop
 The roof, each kissing top entwined with top
 Leaning together.”—BROWNING.

I. INFLUENCES.

i. Geographical.—The extent of the countries brought under the influence of the Mahometan religion is indicated in the map (No. 284). Persia, Mesopotamia, Syria, Palestine, Egypt, North Africa and Spain were in turn wholly or in part subjected. India boasts, in the upper valley of the Ganges, a succession of Mahometan capitals due to the waves of invasion bursting through the north-west frontier.

Saracenic architecture differs from many other styles in being the product of a religion which had no special country. Differing widely in general treatment and in detail, the style was imposed on each country brought under its influence. The term *Saracen* was that employed by the Greeks and Romans for the tribes

occupying the deserts west of the Euphrates. Its exact origin appears to be unknown, but it is generally taken as being derived from the Arabic "*Sahra*," a desert. The name was given to the followers of Mahomet, and is so used throughout this chapter irrespective of nationality.

ii. **Geological.**—As the geological formation differed in each country, local materials and methods of building were employed, and marble, stone, brick, plaster and wood were all employed. Domes were frequently constructed of brick plastered externally and internally, or of stone, as in India. They were generally built in projecting horizontal courses, thus avoiding oblique pressure on the supporting walls.

In Spain, brick and plaster were the principal materials responsible for the peculiar decorative surface treatment. In Northern and Central India, marble and red sandstone were available, and a more monumental type was evolved, richness in surface decoration being obtained by the inlay of precious stones.

iii. **Climate.**—The buildings, being for the most part in Eastern or Southern climes, have small openings, and no large entrances or window surfaces, although a special treatment of monumental entrance gateways was evolved in India (Nos. 294 B, E, 295 and 297). Such features are always subservient to practical necessity and to climatic influences.

iv. **Religion.**—The essence of the Mahometan faith—the last of the three great religions which have arisen from among the Semitic nations—is contained in the words from the Koran, "There is no God but God, and Mahomet is His prophet." The Koran was compiled by Mahomet (born A.D. 570, died 632), from the Bible, Talmud, Apocryphal Gospels, and other sources. Most of the states which embraced Mahometanism became independent, and only yielded nominal obedience to the Chief Caliph; thus in Syria, Persia, Egypt, North Africa and Spain, independent Caliphs reigned, accentuating the differences of style. The prohibition in decoration and sculpture of the use of all natural objects, including the human and animal forms, probably led to the intricate form of geometrical surface decoration known as *Arabesques*, partly influenced by Byzantine art (Nos. 290 and 291).

The Arab was a fatalist (Islam = God's will be done), to whom the present was everything, and such a condition often helped to the erection of buildings, not permanent in themselves, but decorated with pleasing forms and colors with poor materials, such as plaster. Local conditions and variety of temperament, however, affected such treatment, for in India and Egypt tomb houses of a permanent nature were constructed.

Such tomb houses, as the *Táj Mehál* at Agra (Nos. 294 A, B, C,

and 297), formed pleasure houses during the life of the founder. The Moslems separate the sexes, and for royal personages separate tomb houses were often designed.

v. Social and Political.—The war of conquest by which Islam was to subjugate the world bears an important relation to the evolution of the style, and is outlined in the next section.

Each Caliph being a spiritual and temporal ruler, a junction of church and state was effected, which was responsible for the many religious buildings erected, and for the power wielded by each Caliph for perpetuating his memory. Architecture was also continually receiving an impetus by the building of new capitals, consequent on the change of dynasties. The position of women in the social system influenced the planning and design of palaces and houses, in consequence of the isolation of the harem. In towns, such influence was responsible for the elaborate and intricate lattice decoration of the windows, which prevented the women within from seeing or being seen.

In the "Arabian Nights' Entertainments" are described the Mahometan religion, customs and general Eastern life, which the student will find interesting and instructive.

vi. Historical.—Saracenic chronology dates from the "Hejira" or flight of Mahomet from Mecca to Medina in A.D. 622.

After the first four Caliphs, who were friends or kinsmen of Mahomet, came the dynasty of the "Ommiads" reigning at Damascus. They were overthrown in 750 by the descendants of Abbas, the uncle of Mahomet, who founded the "Abbasides" dynasty with Bagdad as the capital.

Syria was conquered by the Saracens A.D. 632-639.

Egypt fell in 638. The foundation of Cairo by the Fatimite dynasty dates from A.D. 971. Saladin, however, reconquered Egypt to the Caliphate of Bagdad in 1171, and in 1187 drove the Christians from Jerusalem.

North Africa was brought under subjection between the years A.D. 647-709, Carthage being taken in 698.

Spain was overrun by the Moors in A.D. 710-713, and the independent Caliphate of Cordova was established. This was divided later into the four petty kingdoms of Seville, Granada, Toledo and Valentia, all of which were gradually recovered by the Christians in the fourteenth and fifteenth centuries. The fall of Granada in 1492 marks the end of the Moorish rule in Spain.

Sicily was occupied by the Moors in the eighth century; they grafted their style on to the Christian architecture. Sicily was recaptured by the Christians in 1090.

Persia was conquered from A.D. 632-651. The Saracenic architecture of that country was then largely founded on and

influenced by the architecture of the Sassanian empire (A.D. 226-641), which it transplanted. In the time of Haroun-el-Raschid (786-809), Bagdad, the capital of the Abbasides dynasty, was the centre of the arts and sciences.

Omar Khayyám (1075-1125) was the Astronomer-Poet of Persia.

Turkey.—Constantinople was conquered in A.D. 1453 by the Seljûk Turks, who in 1299 had commenced their conquering career under Osman I. in Bithynia. This marks the period of Byzantine influence on later Saracenic architecture, for S. Sophia, the great Byzantine cathedral, is henceforth the *motif* of the style.

The *Indian States* began to fall into the hands of Mahometan invaders in A.D. 1000. The Pathan dynasty (1193-1554) included the whole of North India. There were besides several independent kingdoms with capitals at Jaunpore, Gujerat, Malwa, Bengal, Kalbergah, Bijápur, Golconda and others.

The *Mogul Empire* (1526-1857) was founded by Bábar, who consolidated the Moslem Empire by the gradual absorption of the petty kingdoms. To this dynasty, especially at the capitals, Delhi, and Futtehpore Sikri, and Agra, belong the best known examples. Akbar the Great (1556-1605) removed the capital from Delhi to Agra, and afterwards founded Futtehpore Sikri as the capital of the empire.

Sháh Jahán (1628-1658) raised the Mogul Empire to its highest strength and magnificence. He erected buildings in North India, forming splendid memorials of the Mogul dynasty as the "Táj Mehál" and the "Pearl Mosque" at Agra, the "Great Mosque" and Palace at Delhi, the latter celebrated for its "Dewan Khas," or court of audience.

From 1720-1761 the Mogul Empire was declining. Invaders came from Central Asia, and others (French and English) from the south. Titular emperors only, ruled from this period.

For a chronological summary of the dynasties, Sir W. Hunter's book should be consulted.

2. ARCHITECTURAL CHARACTER.

It is difficult to express the character which the style possesses, because of the varied nature it took in countries whose inhabitants differed widely in origin, and whose local types of architecture influenced that of the new religion.

Mosques, tombs and dwelling-houses form the most important buildings. The mosques were undoubtedly more internal than external in their architecture, thus resembling the Egyptian temples. Within the inclosing wall the forest of columns and the low flat roofs in the earlier mosques, and the richly decorated wall surfaces and domes of the later periods, have especial character.

On the exterior the pointed or bulbous (pear-shaped) domes crowning the main structures, and the graceful, tall and elaborately decorated minarets (signal-post or light-house), used by the priests to call the faithful to prayer, impress the beholder very differently to any style already considered. The same importance of internal treatment applies to dwelling-houses which are plain outside, but have the ornamentation lavished on the porticos, walls, and pavements, of the interior. The architecture hardly ranks among those great styles which have been evolved on constructive principles, for it is from the decorative side that it is specially impressive. The surface decoration is important, and must have been largely due to the prohibition of natural forms laid down in the Koran. The pointed, horseshoe, multifoil, and oggee arches are all used (No. 291).

The introduction of vaulting into Egypt dates from the commencement of the Fatimite dynasty and the foundation of the city of Cairo (A.D. 971).

The use of "stalactite" vaulting was first applied in a similar position to the "pendentive" which the Byzantines introduced (Nos. 79, 80, 82). Its origin was probably derived from the corbelling over of slabs of stone to form a resting-place for the circular dome over a square plan. The ornament was eventually used for the bracketing of minaret galleries, the upper part of niches, the crowning member of walls, and elsewhere.

Note.—For the disposition of the essential parts of a mosque and the name given to each, see under Plans (page 678).

3. EXAMPLES.

- | | |
|---------------------|--------------------|
| <i>a.</i> Arabian. | <i>e.</i> Persian. |
| <i>b.</i> Syrian. | <i>f.</i> Turkish. |
| <i>c.</i> Egyptian. | <i>g.</i> Indian. |
| <i>d.</i> Spanish. | |

(a.) ARABIAN SARACENIC.

Although Arabia was the birthplace of the new faith, neither Mecca nor Medina can boast of any noteworthy buildings. The Arabs were only required to turn towards Mecca at prayer times, which was as easy in the desert as in a building, and the erection of mosques appears to have been immaterial.

At Mecca, however, is the **Great Mosque**, repaired and added to by successive Egyptian Caliphs, and finally by the Sultan of Turkey in the middle of the sixteenth century. As now existing, it is an irregular shaped inclosure internally, 570 feet by 380 feet, surrounded by arcades of pointed arches, with an outer inclosing wall having gateways and minarets. In the centre of the inclosure

SARACENIC (EGYPTIAN) ARCHITECTURE.



285.

MOSQUE OF KAIT-BEY, CAIRO.

Showing Minaret and typical form of Dome with Surface Ornament.

is the *Kaabah* or holy shrine, to which all other mosques must, by the *Kibleh* in the *Mihrab* (niche), indicate the direction.

(b.) SYRIAN SARACENIC.

In Syria three important buildings only need be mentioned.

The **Mosque-el-Aksah** (A.D. 691), on the Temple platform at Jerusalem, consists of a 3-aisled basilica, to which were added double aisles on both sides.

The **Mosque-el-Walid** (A.D. 705) is a 3-aisled structure placed laterally on one side of an open space.

The **Dome of the Rock** (known as the **Mosque of Omar**), on the Temple platform of Jerusalem, was built in the eighth century, Saladin (1189) rebuilt the dome, and it was restored in the sixteenth century. In plan it consists of a central circular space crowned with a dome, pierced with windows. This space is surrounded by four massive piers, with intermediate columns of Corinthian type brought from older buildings. These support an entablature on which are placed semi-circular arches. The central portion is surrounded by two aisles, octagonal in plan. In the sixteenth century the interior was encased with marble, and the exterior with colored Persian tiles and marble.

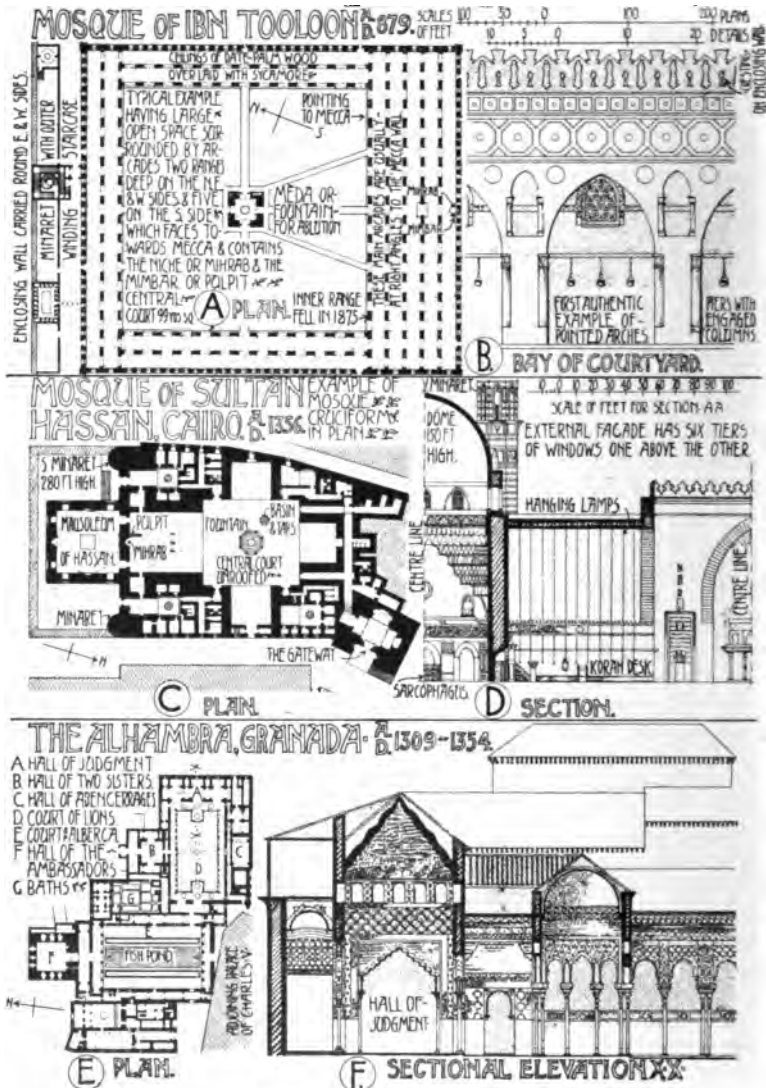
(c.) EGYPTIAN SARACENIC.

The principal examples are at Cairo. One of the earliest buildings is the **Mosque of Amru** (seventh century), built by the Caliphs Abd-el-Melik and Walid. It consists of a central open space, surrounded by rows of columns, taken from Roman and Byzantine buildings, and supporting arches, at right angles to the *Mihrab* wall.

The **Mosque of Ibn Tooloon** (A.D. 879) (No. 286 A, B) is on similar lines, but with piers and angle shafts instead of columns. These support pointed arches, square in section. The construction is of brick with plaster surface. The windows are entirely filled in with geometrical tracery, and the minarets are reckoned the earliest in Egypt.

At the end of the thirteenth century a series of mosques was commenced which corresponds in date with the Gothic development in Europe. The first of the series is the **Mosque of Kalaoon** (A.D. 1287). This was followed by the **Mosque of Sultan Hassan** (A.D. 1356), which differs from the normal type, being cruciform in plan (No. 286 C, D). The central space measures 117 feet by 105 feet, off which are four rectangular arms covered with pointed tunnel vaults. The southern arm contains the *Mihrab*, and beyond is the Founder's Tomb, about 70 feet square on plan,

SARACENIC EXAMPLES IN SPAIN AND EGYPT.



SARACENIC (EGYPTIAN) ARCHITECTURE.



287.

CAIRO.

The Mosque of Kait-Bey, showing Mihrab (Niche)
and Mimbar (Pulpit).

SARACENIC (SPANISH) ARCHITECTURE.



288.

CORDOVA.

Interior of Mosque, showing peculiar form of Colonnades
in two heights.

with a dome supported on stalactite pendentives. On either side are minarets (No. 286 c), one being 300 feet in height. Externally the mosque is surrounded by walls crowned by a massive cornice, and divided into nine stories, having a total height of 100 feet.

The **Mosque of Sultan Barkook** (A.D. 1384) is famous for its graceful dome over the tomb chamber, and for its minarets. In the following century the columned **Mosque El-Muayyad** (1415), and the small yet richly finished **Mosque of Kait-Bey** (1472) (Nos. 285 and 287), with elaborate minaret, are the best known. After this period the influence of the Renaissance movement in Europe (page 437) arrested the local character of Saracenic Architecture.

(d.) SPANISH SARACENIC.

Algiers, Tunis, Barbary, Tripoli and Morocco in North Africa formed connecting links between the Eastern and Western development of the style, but these districts have been only scantily investigated.

After the Moorish conquest of the Peninsula in the eighth century, a series of buildings was erected which may be compared to Basilicas (page 178), extended in width by numerous parallel arcades. In these, the dome on pendentives is generally absent, and there is considerable ingenuity in geometrical design and colored decoration. Roman remains influenced the development.

The **Mosque, Cordova** (A.D. 786) was commenced by the Caliph Abd-el-Rahman, and has since been enlarged, eastwards and southwards, by successive rulers, until it consists of a parallelogram 422 feet by 573 feet. The enclosed portion itself occupies more area than any Christian Cathedral, consisting of nineteen aisles placed North and South, with thirty-three bays to each aisle. The height is only 30 feet. The colonnades are in two heights (No. 288), formed of columns of varying design, mostly from older Roman buildings. From the upper and lower columns spring arches, the lower ones of circular cinquefoil pattern, and the upper of horseshoe form, the alternate lower columns being made to appear connected by a subsidiary treatment of the lower arches (No. 288).

The Churches of **S. Cristo de la Luz** and **S. Maria la Blanca**, both at Toledo, are interesting because of their Saracenic features and detail.

The **Alcazar** (el Kasr = the castle), **Seville**, dating chiefly from 1350-69, is much dilapidated, but still possesses some interesting remains as the principal façade and Patio de las Doncellas.

The **Giralda, Seville** (A.D. 1195), so called from the vane which turns ("gira"), is one of the most celebrated towers in the world. The upper part was burnt and rebuilt in A.D. 1395. It

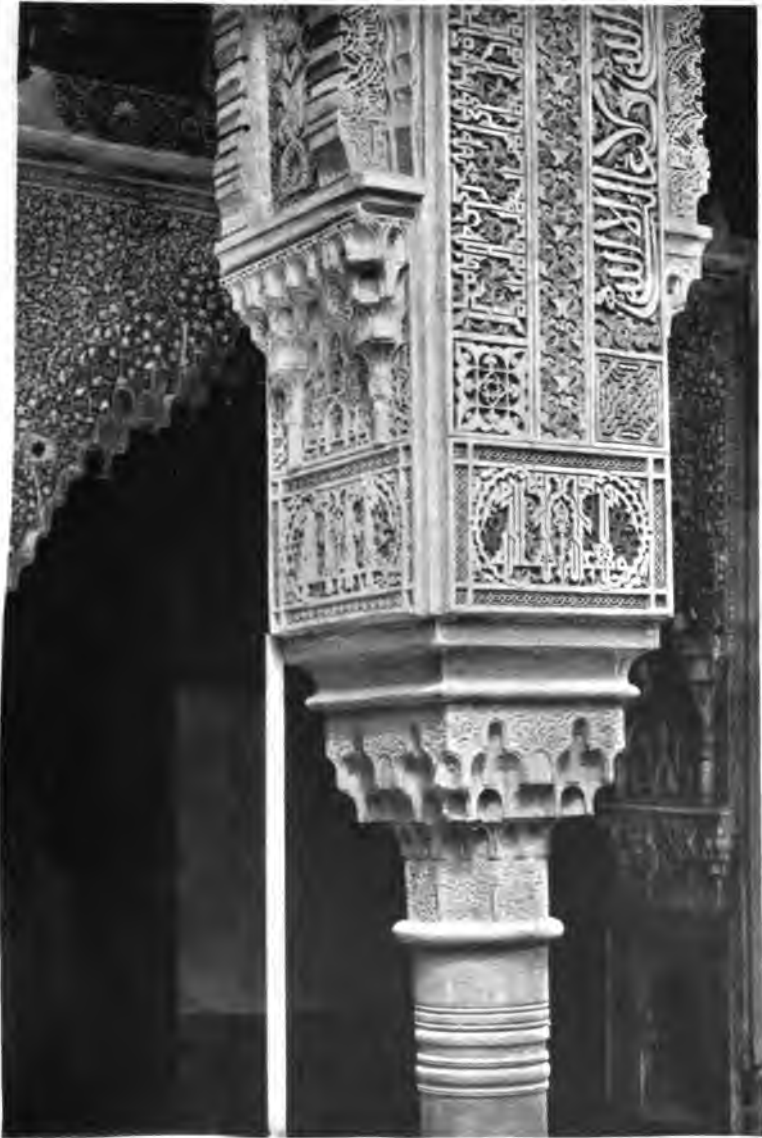
SARACENIC (SPANISH) ARCHITECTURE.



289.

THE GIRALDA, SEVILLE.

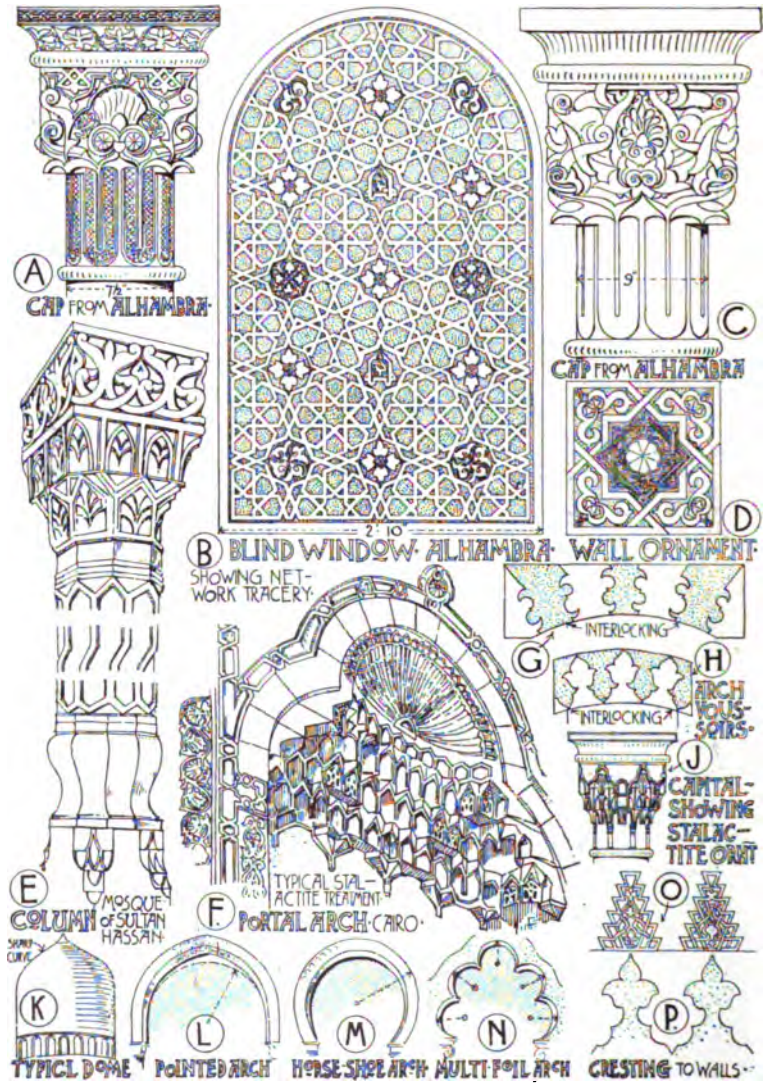
SARACENIC (SPANISH) ARCHITECTURE.



290.

THE ALHAMBRA AT GRANADA.
Stalactite Capital, from Courtyard.

SARACENIC ORNAMENT IN SPAIN AND EGYPT.



resembles (No. 289) other examples in Morocco and Tunis, and was probably erected as a symbol of power. It is 45 feet square, and rises to a height of 185 feet, being terminated by a belfry erected in 1568, making the total height 275 feet. As seen by the illustration, the upper part of the walls is panelled with geometric ornament.

The **Alhambra, Granada** (A.D. 1309-1354), a portion of a royal palace, and probably the most famous of all Saracenic structures, was practically rebuilt in 1309-1354 by Abd-el-Walid and his successors. The plan (No. 286 E) consists mainly of two oblong courts, at right angles to each other. The first of these, the "*Court of the Lions*," 115 feet by 66 feet, is the most elaborate. The pillars are alternately single and coupled (No. 286 F) and crowned with capitals peculiar to the Alhambra (Nos. 290 and 291 A, c). The arcading is of wood, covered with richly-stuccoed decoration (No. 290). A copy of this court, two-thirds the size, was erected in 1854 at the Crystal Palace by the late Mr. Owen Jones.

The "*Hall of Judgment*" (No. 286 E) is at its Eastern end, and on either side are the small halls of the "Two Sisters" and of the "Abencerrages," with roofs covered with stalactite decoration. The other main court, known as the "*Court of the Alberca*," has its longer axis placed North and South, and is 138 feet by 74 feet. On the South is a two-storied arcade, and to the North is the "*Hall of the Ambassadors*," 35 feet square, with deeply-recessed windows on three sides giving views of the town beneath. This hall is crowned by a polygonal dome with arabesque decorations.

The Alhambra forms a series of apartments, halls, and courts, framed in a setting of arcades, fountains, and gardens, whose subtle effect it is difficult to analyse. The richly modelled geometric plaster decoration, brilliantly painted and gilded, has probably never been surpassed.

(c.) PERSIAN SARACENIC.

The architecture evolved by the Saracens in Persia was largely founded on that of the Sassanian dynasty (see Historical), the remains of which are chiefly palaces. The fire worship of the people required no temples, but the palaces indicate the influence of the older Assyrian and Persian architecture. In these Sassanian buildings, *e.g.*, the **Palaces at Serbistan** (A.D. 350), **Fiروزabad** (A.D. 450), and **Ctesiphon** (A.D. 550), constructive skill is shown, the lower courses of the vaults and domes being built in horizontal layers, to avoid the oblique pressure which would occur with radiating voussoirs. The remains of the

SARACENIC (TURKISH) ARCHITECTURE.



292.

THE MOSQUE OF SULEIMAN I.
Known as the "Suleimaniyeh."

Palace at Mashita (A.D. 627) are considered by Mr. Fergusson to show a prototype of Persian and Indian Saracenic work. Under the Abbasides dynasty, Haroun-al-Raschid (786-809) erected several important buildings at **Bagdad**. The ruins of these tombs are sometimes taken to indicate the source of the stalactite vault.

The **Mosque, Tabreez** (A.D. 1204) is a domical structure, with impressive entrance and a decoration of colored glazed brick in intricate patterns.

The **Tomb at Sultanieh** (A.D. 1303-1316) is an octagonal structure, crowned by a pointed dome 80 feet in diameter.

The great **Mosque, Ispahan**, by Shah Abbas the Great (1585-1629), has a large open courtyard surrounded by two-storied arcades. Special features are the immense pointed portal arches, the bulbous dome, and the round minaret, while permanent decorative effect is obtained by the use of many-colored glazed bricks and tiles, the treatment of blue being particularly successful, recalling the palaces of Nineveh and Persepolis.

(f.) TURKISH SARACENIC.

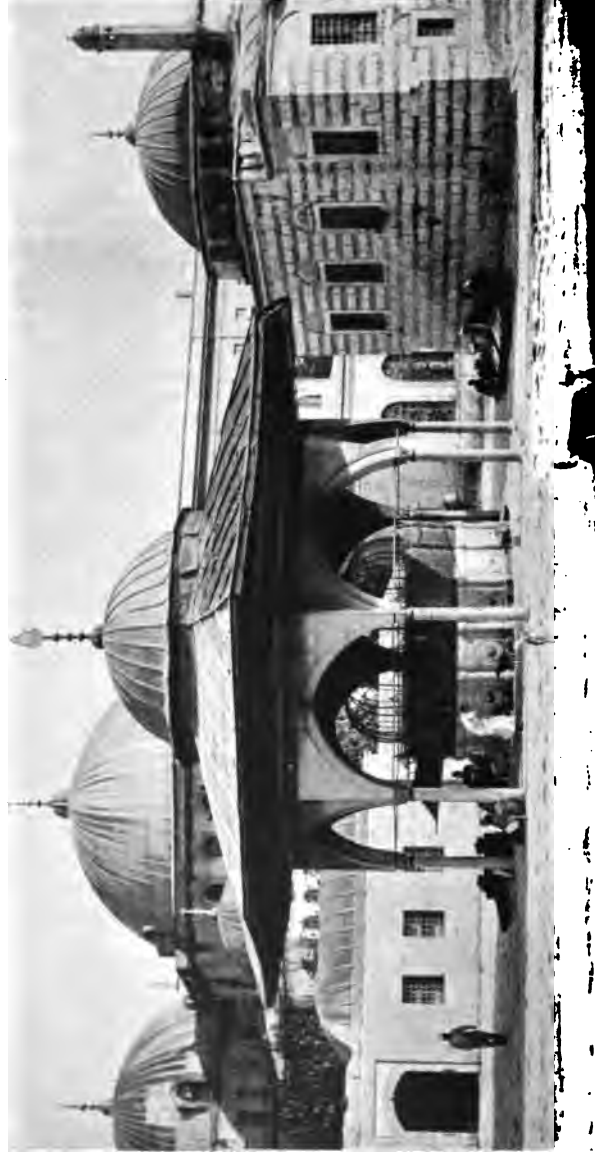
On the capture of Constantinople in 1453 by the Seljûk Turks, a type of architecture based on Byzantine structure, such as S. Sophia, was evolved. In these are to be found spherical domes, plain pendentives, semi-circular apses crowned with semi-domes, and the strong supporting buttresses such as exist in S. Sophia. In consequence there is an absence of the flat ceilings and columned courts of other types.

The "**Suleimaniyeh**," or Mosque of Suleiman I., "The Magnificent" (A.D. 1550-1556) (No. 292), was erected by Sinan the architect. It has a forecourt nearly 200 feet in width, surrounded on all sides by a cloister roofed with small domes. In the centre of the forecourt is the usual fountain, and at the four corners are minarets.

The main structure resembles S. Sophia, but is of smaller dimensions, the dome having a diameter of 86 feet with a height of 156 feet. The gallery over the aisles is reached by two flights of circular steps. Internally the walls are covered with colored marbles, the mihrab being white, with a frame of colored Persian tiles. The decoration is effected by inscriptions from the Koran. The garden behind the mosque contains two octagonal tombs, that of the founder and his favourite wife. The former is built of many-colored marbles lined internally with blue and white tiles, surrounded by an arcade, and crowned with a dome decorated with arabesques and supported on eight marble columns.

The "**Ahmediyeh**" (Mosque of Ahmed I.) (A.D. 1608-1614), differs in being an exact square on plan. The central dome is

SARACENIC (TURKISH) ARCHITECTURE.



FOUNTAIN NEAR S. SOPHIA, CONSTANTINOPLE.

supported on massive circular pillars and is surrounded by semi-domes, and in the four angles, bringing the plan to a square, are smaller domes. Blue tiles form a special feature of the interior. There are six minarets, marking the boundaries of the mosque and forecourt.

The *fountains* at Constantinople and other Eastern cities are special features of interest (No. 293). They have a niche on each face and wide-spreading eaves to the roof. The water tank, inclosed by a grating or grille, from which the metal cups are filled, occupies a central position. The exterior is often faced with marble or ornamented in plaster or glazed tiles, having arabesques and inscriptions in gold letters on blue and green grounds.

(g.) INDIAN SARACENIC.

As already mentioned (page 610), Indian Saracenic must have been influenced by the remains of the Sassanian Empire (A.D. 226-641). The various dynasties, with their dates, have been given under Historical (page 656). These periods overlap considerably, and render the progress of the style difficult to classify shortly. Only a few of the principal structures can be even mentioned. The use of marble and sandstone gives a monumental character to the buildings, not possessed by other types of Saracenic architecture. The dome on the square plan is used, but the stalactite pendentive appears to have been uncommon, its place being taken by a peculiar form of arching and corbelling in horizontal courses (No. 294 J). Colossal pointed portal arches, with semi-domes (No. 294 E) and round minarets, are special features.

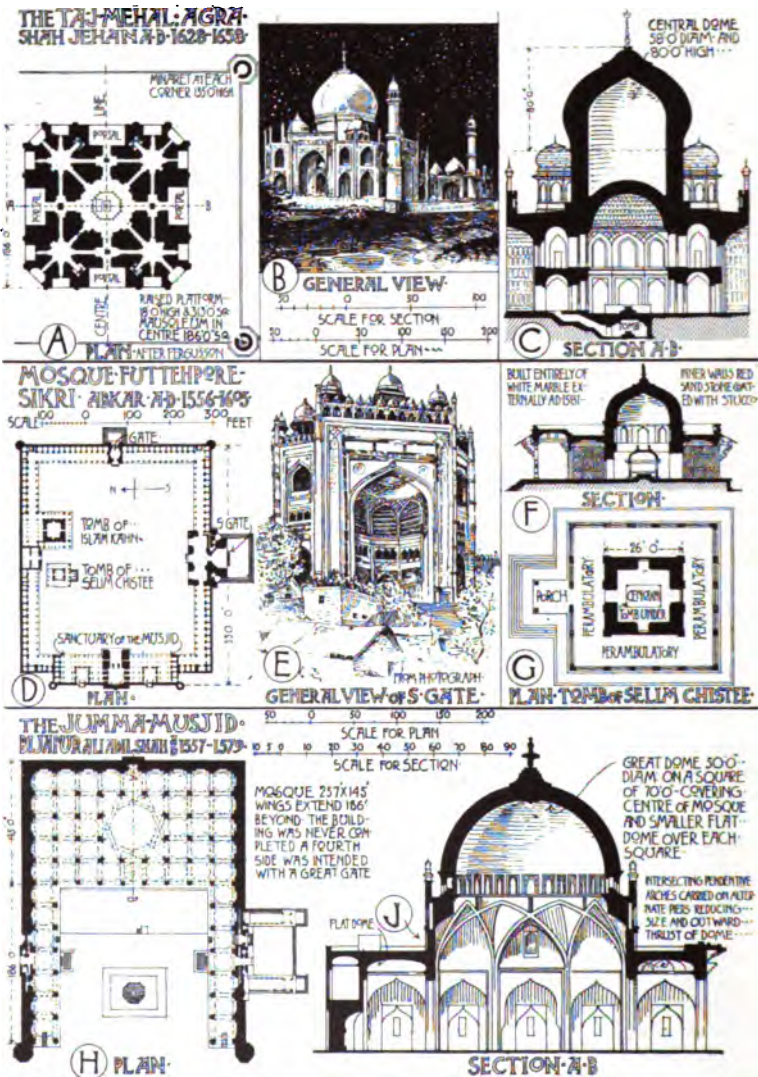
Delhi, the capital of the Pathan dynasty in the thirteenth century, became the capital of the Indian Mahometan Empire, and may be compared in its architectural importance with Athens, Rome, or Constantinople. Amongst numerous ruins of mosques and tombs are the **Kutub Mosque** and **Kutub Minaret**, a fine model of the latter being at the Indian Museum, South Kensington.

The **Tomb of Shere Shah**, at **Sasseram**, stands on a platform with angle pavilions, in the middle of a sheet of water. It is octagonal on plan, surmounted by a dome, as are also the angles at the receding stages.

The **Jumma Musjid** (*i.e.*, principal mosque), **Jaunpore** (1419), and the **Atala Musjid**, have pointed keel-arches and bracket capitals, with roofs of flat slabs.

The **Jumma Musjid**, **Ahmedabad** (1411), shows the influence of Hindu trabeated architecture in conjunction with the pointed arch. It has fifteen domes of different heights, each supported on twelve pillars.

SARACENIC EXAMPLES IN INDIA.





295. MOSQUE OF FUTTEHPORE-SIKRI.
Western Gateway, showing typical treatment of half-domed Entrance with recessed doorway.

SARACENIC (INDIAN) ARCHITECTURE.



296. MARBLE TOMB OF SELIM CHISTEE AT FUTTEHPORE-SIKRI.
Showing peculiar type of bracket capital and tracery windows.

The celebrated **Jumma Musjid, Mandu** (1405-1432), consists of an inclosed space 290 feet by 275 feet, having a square courtyard, surrounded on each side by arcades of eleven pointed arches. The piers supporting these are of red sandstone, and numberless pointed domes crown the spaces between them.

The **Adinah Mosque** is at **Gaur**, the ancient capital of Bengal. The arcades surrounding the rectangle are crowned by no less than 385 domes of similar design. The architecture of this province is influenced by the absence of stone. Brick is the building material, and an essentially arcuated style is the result.

At Kalburgah is a mosque which is a deviation from the normal type, in that the whole area, 216 feet by 176 feet, was roofed in by a series of domes, light being introduced through high pointed arched openings in the outer walls.

Bijapur possesses some famous examples, erected under the Adil Shaki dynasty. The **Jumma Musjid, Bijapur** (A.D. 1557-1579) (No. 294 H, J) occupies a rectangle of 257 feet by 331 feet. It consists of a series of squares, each covered with a flat dome. In this building and the **Tomb of Mahmúd** are domes with singular pendentives. The latter building has a dome, 97 feet in diameter, placed on a platform formed by intersecting pendentive arches carried from each alternate pier; thus the space to be covered is reduced, and the weight of the pendentives acting inwards tends to counteract the outward thrust of the dome, as at the Jumma Musjid, Bijapur (No. 294 J).

Mogul Architecture.—The architecture of all previous periods was eclipsed by the architecture of the Mogul dynasty (A.D. 1526-1761). Some of the principal examples are tombs, and were erected at Agra, the capital. These were mostly octagonal, erected on a garden platform, and laid out with ornamental fountains, the angles and entrances being accentuated by domed pavilions. Such tombs were, during the lifetime of the founder, used as festal halls.

At Futtehpore Sikhri, King Akbar (1556-1605) erected a group of important buildings, one of which is the **Mosque** (No. 294 D, E). This is a three-domed structure, 290 feet by 80 feet, occupying one side of an open court, the whole inclosure measuring 550 feet by 470 feet, and containing two royal tombs. The southern and western gateways are specially noteworthy (Nos. 294 E and 295) as being of a style which prevailed throughout the period, and which may be contrasted with the Greek, Roman and Gothic styles in the treatment of entrance gateways. In the example (No. 295) the doorway is placed at the back of a recessed opening which is crowned by a semi-dome. By this means the openings led up to the high inclosing arch of the outer wall by an easy gradation, giving all the size and dignity required for a noble portal without disturbing the æsthetic qualities of scale.

SARACENIC (INDIAN) ARCHITECTURE.



In the courtyard of this mosque is the marble **Tomb of Selim Chistee** (No. 294 D, F, G), with broad spreading eaves and elaborately carved bracket capitals (Nos. 296 and 298 F), of which there is a cast in the Indian Museum, South Kensington. The windows have pierced tracery of geometric pattern, a characteristic Saracenic treatment (No. 296).

The celebrated **Dewan-Kas**, or private audience hall, of which a plan and elevation are given (No. 298 H, J), has inlay work of precious stones on its walls.

Shah Jehan (1628-1658), grandson of Akbar, erected at New Delhi a palace of great size, of which only portions remain. It occupied a space of 1,600 feet by 3,200 feet, and had immense portal, entrance hall, courtyards, bazaars, audience and music halls, baths and gardens, besides accommodation for distinguished guests and court attendants.

The **Táj-Mehál, Agra** (No. 294 A, B, C), was also erected by Shah Jehan. It forms a part of one of the most famous groups of architectural monuments in the world. It is a royal mausoleum of white marble placed in the centre of a raised platform 18 feet high and 313 feet square, each angle being marked by a minaret 133 feet high. In plan it is symmetrical, being a square of 186 feet, with the angles taken off. It has a central dome, 80 feet high (No. 294 C) and 58 feet in diameter, crowned by an outer dome of the same height (No. 297). Around the central dome are two-storied aisles, each angle being provided with a small dome supported on pillars. The entrances are in the centre of each face and are of the usual recessed type, crowned with a four-centred arch set in a square frame. The light to the interior is introduced through two pierced marble screens in the upper story, producing a dim and subdued effect on the interior. The Táj is specially famous for its inlay of precious stones—jasper, bloodstone and agate, in ornamental scrolls and fretwork—which impart a rich effect to the fabric. In its setting of cypress trees, marble fountains, lakes and terraces (No. 297), the Táj produces an enchanting effect, which has been remarked by all travellers.

Shah Jehan also erected other notable buildings, including the **Muti Musjid, or Pearl Mosque, Agra**. It is built of white marble, and is a three-domed mosque, placed on one side of a court, about 150 feet square.

The **Jumma Musjid, Delhi**, has a similar type of plan. It is built of red sandstone and white marble, and is peculiar in being designed only for external effect, but seldom sought for in mosques (see page 656).

After Shah Jehan, few buildings of importance were erected, but a decline set in, due in part to the introduction of European modes and the influence of Classic revivalism.

4. COMPARATIVE.

A. **Plan.**—The essential requirement of a mosque (Arabic, *mesgid* = place for prostration)—the principal type of building—is an unroofed inclosure approximating a parallelogram on plan, with central fountain for ablution, as enjoined by the Korân. This occupies a position similar to that in the atrium of the Christian basilican church. Around this open space were placed colonnades (No. 286 A), for protection from the sun. The side towards Mecca was the most frequented part, and was generally of extra depth. It contained the *Kibleh* (indicating the direction of Mecca) in the *Mihrab*, or niche, and the *mimbar* (pulpit) placed alongside (Nos. 286 A, c and 287). Near at hand is the "*dikka*," or tribune, from which the "*unām*" reads passages from the Korân and intones the prayers. *Minarets* accentuate certain portions of the plan, and are generally polygonal (Nos. 285, 286 c and 298 G).

A second type of plan is the Mosque of Sultan Hassan at Cairo (No. 286 c), which is cruciform on plan, the centre portion only being left open. The four arms are arched over with pointed vaults, and behind the mihrab is placed the founder's tomb crowned with a dome.

A third type of plan was based on the Byzantine model, in which the mosque proper was independent, having a front courtyard, and a garden behind in which the tomb of the founder was placed.

The *Khans* (or Hotels), often erected in the great cities (ex. Khan of Kait-Bey at Cairo), had an open court, round which were placed numerous chambers used by the merchants or travellers, who came from all parts to dispose of their goods. In Constantinople there are 180 of these buildings.

The *dwelling-houses* are planned with interior courts in the Eastern manner, on to which the principal rooms face. The windows towards the street are small and strongly barred in the lower stories, those to the upper stories being often ornamented with lattice work (No. 291 B). Special regard is paid to privacy in the planning of the corridors and in the isolation of the *harem* or women's apartments. There is generally a principal court, approached from the entrance, in which is placed a summer-house and fountain.

B. **Walls.**—Constructed of local materials, and ornamented with minute surface decoration, either in plaster, precious stones, or glazed tiles (page 680). In the Alhambra, Granada, the walls are inlaid with glazed tiles to a height of 4 feet, above which a separate scheme of arabesque treatment is carried out. In Cairo many of the walls are of stone on the ground floor, the upper part being of brick faced with plaster, or of wood. They seem

specially treated for the privacy of the inmates, the windows, often with balconies, being fitted with elaborately designed lattice work, of which there are examples in the Indian Museum, South Kensington. Another peculiarity is the banding of the walls in alternate courses of stones of different colors or of bricks (No. 285). The *minarets* are generally richly finished, they are usually square on plan, changing in the upper stories to polygonal and circular, each story being marked by projecting balconies supported on stalactite bracketing and with pierced balustrading, as will be seen by referring to the Mosque of Kait-Bey (No. 285). The larger mosques have several minarets (No. 292).

A type of bold cresting often crowned the walls instead of a cornice (Nos. 285 and 291 o, p). The noble type of entrance, specially used in India (Nos. 294 E, 295 and 297), consisting of a high four-centred arch in a square frame, resembling a Tudor arch, and crowned by a semi-dome, has already been described (page 675). In later Mogul architecture the walls were divided into panels by perpendicular and horizontal inclosing lines (No. 295).

c. **Openings.**—Windows were usually small, being regulated to some extent by the Southern climate in which Saracenic work was mostly carried out. They were often grouped together and occasionally had their entire surface fitted with elaborate tracery work of marble and plaster, schemed into geometrical patterns—the small open spaces being of colored glass (Nos. 291 B and 296). Compare with Gothic treatment.

Four types of arch were employed:—

(a.) The *Pointed Arch*, square in section and not moulded (No. 291 L).

(b.) The *Ogee or Keel Arch*, used in Persia and India (No. 291 K).

(c.) The *Horseshoe Arch*, used in Spain and North Africa (No. 291 M).

(d.) The *Multifoil or Scolloped Arch*, an especially Spanish feature (Nos. 288 and 291 N).

Such forms are used for arcades, window and door openings. In arcades they either rest on columns (No. 286 F) or piers (No. 286 B), and are frequently tied in at their springing by wooden beams or iron rods. Voussoirs of interlocking patterns were also used, as at the Mosque of Kait-Bey (Nos. 287 and 291 G, H). The *doorways* were often surrounded with elaborate carved work, inclosed in a square frame, with stalactite cornices (No. 291 F).

d. **Roofs.**—The ceilings to undomed mosques were generally left with flat timbers, brilliantly colored and gilded. In some instances, as at the Alhambra, timber was canvased over and plastered before being colored.

The *Dome* is a special feature, occurring in the principal mosques and tombs, and is of the various forms already stated as employed for arches; it is seldom spherical as in Byzantine

architecture. Domes are sometimes built of brick in horizontal courses, plastered inside and out. Others of a later period are of stone, also of horizontal courses, and with geometrical patterns worked on the external surface, as at the Mosque of Kait-Bey (No. 285), which differs from the Byzantine and Renaissance treatment. Windows are frequently placed in the lower parts (No. 292), which were occasionally ornamented with a fringe of sculptured foliage (No. 297). Domes were nearly always placed over square apartments, as in the Byzantine style, and the Saracenic architect had to face the same difficulty, which he overcame by a series of small pointed niches placed in rows one above the other. Each projected in front of the one below (Nos. 286 D and 291 F), and by easy gradation bringing the square to the circular ring from which the dome sprung (No. 286 D, F). This is known as "stalactite" work, and forms in fact the Saracenic pendentive, a striking contrast with the Byzantine feature, which was always a plain curved surface (Nos. 79 J, 80 B, 82 and 86). Such pendentives were often constructed of plaster and wood.

In India, where domical construction was carefully worked out, a peculiar form of angle or squinch arch was adopted (No. 294 J).

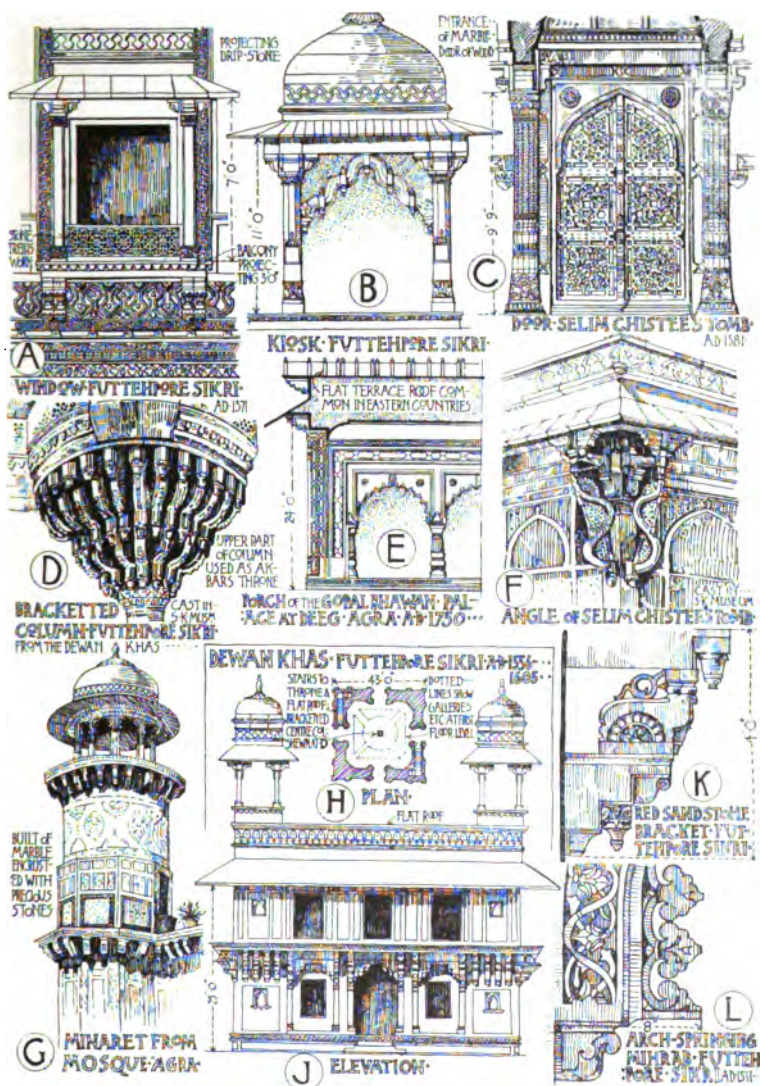
E. Columns.—Many of the earlier and later buildings have ready-made columns, re-erected from Roman and Byzantine buildings (No. 288). They were often, therefore, of different design, producing an incongruous effect. At the Alhambra, a type of capital with square upper portion and long necking was evolved (Nos. 290 and 291 A, C). The columns supporting these are very slender, the height being twelve diameters. The capitals in the Alhambra are either treated with conventional scrolls (No. 291 A, C), or are formed with a stalactite treatment (Nos. 290 and 291 J). Such capitals have an upward continuation, of post-like shape, against the sides of which the stilted arch abuts, being supported by a piece of stalactite corbelling, as seen in the same example (No. 290).

In India, local Hindu influence produced a short stunted pier quite Eastern in character (No. 298 C, E).

F. Mouldings.—Mouldings are unimportant, their place being taken by the elaborate surface decoration already referred to. Such a treatment as the stalactite work used in rows one above the other, produces, however, a moulded effect in itself, similar to a crowning Classic cornice (Nos. 285, 287 and 290). Mouldings, when used, follow on Byzantine models of plain cavetto and torus, and as a frame to doorways and windows often take the form known as the "billet," which was also used in Romanesque architecture (No. 139 C, G).

G. Ornament.—This was chiefly surface ornament, bounded by flat planes, and regulated, as far as *motif* was concerned, by the rules of the Korân, which prohibited the copying of natural objects.

SARACENIC ORNAMENT IN INDIA.



Compare in this respect the elaborate sculpture of a Gothic façade, or the Classic treatment of a Greek temple or Roman triumphal arch. Debarred from the use of such an important quarry of forms, the Saracens were led to evolve and perfect a scheme of decoration in which the science of geometry was an important factor. They covered their buildings with geometric intertwining designs, which, in addition, they treated with gorgeous coloring in red, white, blue, silver, and gold, producing a most brilliant fretted surface, or "carpet-like" effect.

Among different types are :—

(a.) *Mnemonic* ornament, consisting of inscriptions from the Korân, worked into decorative panels, and composed either of lettering in the older style, known as *Kufic*, or of the flowing character of the later *Italic* lettering (No. 290).

(b.) *Surface* ornament in various planes, known as "*superposed*."

The term *arabesque* (Arabian-like) is applied generally to geometrical surface designs, whether in plaster or painted tiles. In these designs endless variety is obtained by the joining together of straight and curved lines, forming geometric figures of all conceivable forms (No. 291 B), the straight lines never forming a right angle at their junction.

(c.) *Stalactite* decoration, primarily used to form the pendentives of domes (No. 286 D, F), was afterwards used decoratively in door-heads (Nos. 287 and 291 F), capitals (Nos. 290 and 291 J), and on walls generally. Examples of this treatment can be seen in the Mosque of Kait-Bey at Cairo (Nos. 285 and 287).

The stalactite pendentive is comparatively rare in Spanish Saracenic. The Saracens also excel in their surface decoration, as applied to the accessories of architecture. The *mushrebiyehs* (Arabic, *sharâb* = a draught), or elaborate lattice-work screens formed of numerous turned pieces of wood, are characteristic. Such screens are used to windows, projecting bay windows, portions of façades in town houses, and the drinking fountains. The *mimbars* (No. 287) are richly carved with such lattice work and with stalactite ornament. They are also inlaid with ebony ivory, and have interlocking arch voussoirs of colored marbles. An elaborate example is that of the Sultan Kait-Bey (No. 287).

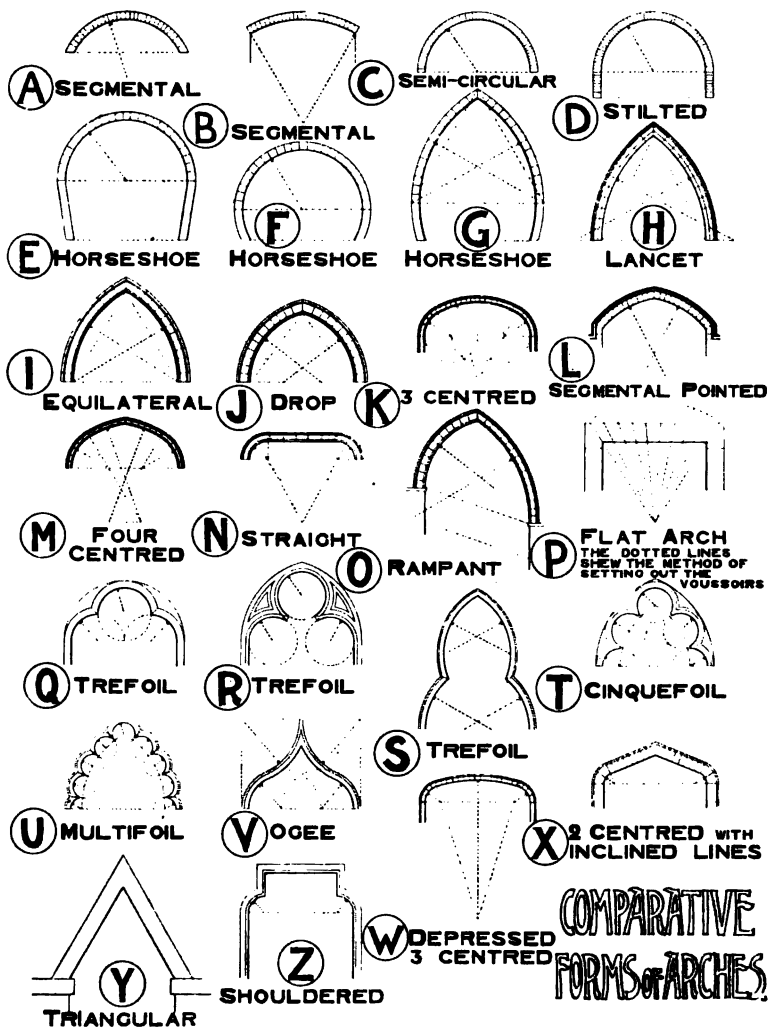
The student should visit the Saracenic galleries at the Indian Museum, S. Kensington, where an excellent idea can be obtained of the ornamental features and color decoration of the style.

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COMPARATIVE ARCHITECTURE.



“ Architecture is the printing press of all ages, and gives a history of the state of society in which it was erected.”—MORGAN.



GLOSSARY OF ARCHITECTURAL TERMS, WITH REFERENCES TO THE ILLUSTRATIONS.

Abacus (Gk. *abax* = a board).—A square or rectangular table forming the crowning member of a capital. In Grecian Doric, square without chamfer or moulding (No. 38 A). In Grecian Ionic, thinner with ovolo moulding only (No. 38 c). In the Roman Ionic and the Corinthian, the sides are hollowed on plan and have their angles cut off (Nos. 38 D and 67 c). In the Romanesque period, the abacus is deeper but projects less and is moulded with rounds and hollows, or merely chamfered on the lower edge (Nos. 98 J, K, L, M, 103 A, D, 107 C, D, F, K and 146). In Gothic architecture the circular or octagonal abacus was mostly favoured in England (No. 148), while the square or octagonal abacus is a French feature (No. 165).

Abutment.—The solid masonry which resists the lateral pressure of an arch (Nos. 54, 79, 80, 153, 199, 223, 253 E and 256).

Acanthus.—A plant, whose leaves conventionally treated, form the lower portions of the Corinthian capital (Nos. 33, 44 J, 67 A, 78 A, C, 88 and 256 c).

Acropolis (Gk. = upper city).—Most ancient Greek cities were built upon hills, the citadel on the summit of the hill being known as the *Acropolis*, and containing the principal temples and treasure houses (Nos. 1 and 17).

Acroteria (Gk. the summit or vertex, the extremity of anything).—Bases or blocks of stone resting on the vertex and lower extremities of the pediment and intended for the support of statuary or ornaments (No. 16 A).

Adytum (Gk. = a recess).—A secret chamber in certain temples from which the public were excluded, and from which oracles were delivered.

Agora.—The Greek *Forum*, a place of open air assembly or market.

Aisle (Lat. *ala* = a wing).—The lateral divisions which run parallel with the nave in mediæval and other buildings (Nos. 75, 105, 117, 155, 203 and 253).

Ambo.—A raised pulpit from which the Epistle and Gospel were read (Nos. 72, 73 B and 82).

Amphi-prostyle (Gk. columns at both ends).—A Temple having a portico at both extremities (No. 18 E) (see page 58).

Ancones (Gk. elbow or hollow).—A small console on each side of a door supporting an ornamental cornice (Nos. 37 D, E, F, and 206 J).

Annulet (Lat. *annulus* = a ring).—A small flat fillet encircling a column. It is used several times repeated under the ovolo or echinus of the Doric Capital (Nos. 19, 27 N, 38 A, 40 D and 262 A).

Anta (plural *antæ*).—Pilasters terminating the side wall of a temple, and having base and capital differing from those of adjacent columns (see Pilaster) (Nos. 18, 21 B, 38 F, 41 F and 44 F).

Antefixæ (Lat. *ante*, before, *fixæ*, I fix).—Ornamental blocks, fixed vertically at regular intervals along the lower portion of a roof, to cover the joints of the tiles (Nos. 16 D, 20 J and 44 N).

Anthemion (Gk. = flower).—A

term given to the honeysuckle or palmette ornament of several varieties, used in cornices, in the necking of Ionic capitals, and elsewhere in Greek and Roman Architecture (Nos. 29 E, 37 E, 39 J, 41 M and 44 A, F).

Apophyge (Gk. a flying off).—The cavetto or concave sweep at the top and bottom of the column proper, connecting it with the fillet (Nos. 29 O and 40 N).

Apse (Gk. signifying an arch).—The circular or multangular termination of a church choir, the term being firstly applied to a Roman basilica. The apse is a continental feature, and contrasts with the square termination of English Gothic work (Nos. 100 D, F, 105 C, G, 127 D, 155, 157 D and 159 B).

Apteral (Gk. without wings).—A temple without columns on the sides (No. 18 A, B, D, F).

Aræostyle (No. 39 V).—A term given when the space between two columns is $1\frac{1}{2}$ diameters.

Arcade.—A range of arches supported on piers or columns, and attached or detached from the wall (Nos. 62 A, 63, 74, 178, 183 and 249).

Arches are of various forms, and can be best understood by referring to No. 299.

Architrave (Gk. = chief beam).—The beam or lowest division of the entablature which extends from column to column (Nos. 16 A, 37 A, D and 194 E). The term is also applied to the moulded frame which bounds the sides and head of a door or window opening.

Archivolt.—The mouldings on the face of an arch resting on the impost (Nos. 94 H and 103 F).

Arris.—The sharp edge formed by the meeting of two surfaces.

Ashlar.—Squared stonework in regular courses, in contradistinction to rubble work.

Astragal (Gk. = a knuckle-bone).—A small semicircular moulding, often ornamented with a bead or reel (No. 39 C, D). *Torus* is the name applied to large mouldings of similar section (No. 39 P, Q).

Asylar.—A treatment of façade without columns (No. 192).

Atlantes.—Carved male figures

serving as pillars, also called *Telamones* (No. 28 N).

Atrium (Nos. 65 B and 73 B).—In Roman architecture the outer or entrance court surrounded by a roof, but open to the sky in the centre. In large houses it had a colonnade. In early Christian and later architecture the open space before the entrance doors (pages 162, 180).

Attic.—A term generally applied to the upper story of a building above the main cornice; also applied to low rooms in a roof (Nos. 164 and 216 G, H).

Baldachino.—A canopy supported by columns, generally placed over an altar or tomb (Nos. 72, 76, 93 and 204).

Ball-flower.—The characteristic ornament of Decorated Gothic architecture (No. 147 C).

Baluster.—A small pillar or column supporting a handrail (Nos. 234 H, 242 and 244 E) or coping, the whole being called a balustrade (No. 250 A, B).

Baptistery.—A separate building to contain a font, for the baptismal rite (No. 91).

Base.—The lower portion of any structure or architectural feature.

Basement.—The lowest story of a building, also applied to an underground story.

Basilica (Gk. *basileus*, a king).—A term which came to be applied to a large hall for the administration of justice (page 136) (Nos. 58, 73 A, B and 74).

Battlement.—A parapet having a series of indentations, which are called *embrasures*, the raised portions being known as *merlons* (Nos. 127 A, 132 and 147 M).

Bay.—The division or compartment into which the nave or roof of a building is divided (Nos. 122 and 167 A, C).

Bead.—A small cylindrical moulding often carved with an ornament resembling a string of beads (see page 106) (No. 39 C, D).

Belfry.—A term generally applied to the upper room in a tower in which the bells are hung (No. 130 E), and thus often to the tower itself.

Bema.—A raised stage or platform reserved for the higher clergy in Early Christian Churches. Synonymous with sanctuary, it forms the germ of the transept in later architecture (No. 75 C, E).

Billet.—A moulding used in Norman times; it consists of short cylindrical or square pieces occurring at intervals (No. 139 C, D, G).

Boss (Fr. *bosse* = lump or knob).—A projecting ornament, placed at the intersection of the ribs of ceilings, whether vaulted or flat. The term is also applied to the curved termination to the weather-mouldings of doors and windows. Bosses are often carved with great delicacy, with heads of angels or flowers and foliage (Nos. 109 A, 112, 143 D, J, 148 O, P, and 149 J, K, L, M).

Bowtell.—A Gothic circular moulding, probably derived from the word *bottle* (No. 146).

Bracket.—A projecting ornament carrying the upper members of a cornice (see Ancones and Console). Generally formed with scrolls or volutes at the two ends (Nos. 67 D, 191 A, B, and 198 B, C).

Broach-spire.—An octagonal spire rising above a tower without a parapet, and having the angles of tower covered with pyramidal forms, as in Early English works (No. 140 A, B).

Buttress (Fr. *aboutir* = to lie out).—A mass of masonry projecting beyond the face of the wall to resist the pressure of an arch or vault. The development in each century will be noted under each style (Nos. 79, 100 B, 109 A, 127 A, B, 141, 153 A).

A *flying* buttress is an arch resting on a detached pier some distance from a wall, the inner end resting against the church wall to take the thrust of the vaulting (page 269) (Nos. 100 B, 109 A, 141 E, F, G, H, 153 A and 157 B).

Byzantine architecture.—The style evolved at Constantinople or Byzantium in the fifth century (page 192), and which is essentially the style of the Eastern or Greek church to the present day.

Campanile.—An Italian name for a bell tower, generally detached from the main building (Nos. 96, 114 A, 181, 184 K, 214 K and 254).

Canopy.—A covering over niches and tombs (Nos. 128, 174 A, C, M and 190 F, H, M, N).

Capital (Lat. *caput* = a head).—The upper portion of a column or

pilaster (Nos. 10, 13, A, C, G, 33, 38, 57, 67 A, G, 88, 89, 98).

Caryatides (Nos. 42, 44 M).—Sculptured human female figures used as columns or supports (page 108). Traditionally taken to represent the women of Caria, who sided with the Persians against the Greeks, and were made slaves.

Caisson.—A panel or coffer in a ceiling (see Coffers) (Nos. 65 C, 68 B, 74, 198 H).

Caulicoli (cf. page 85) [Lat. *caulis* = a stalk].—The eight stalks supporting the volutes in the upper part of a Corinthian capital (No. 33).

Cavetto (Ital. *cavare*, to dig out).—A simple concave moulding (No. 39 E, F).

Chancel (Lat. *cancellus* = a screen).—The portion set apart for the clergy and choir and separated by a screen from the body of the church (Nos. 127 D and 130 C).

Chapels.—Places of worship, attached to churches, in honour of particular saints. Sometimes erected as separate buildings (No. 159).

Chapter-house (Lat. *capitulum*).—It was the place of assembly for the abbot or prior and members of a monastery for the transaction of business, and usually opened out of the cloisters on the easternmost side, as at Westminster (No. 127 D). In England, it was usually polygonal on plan, with a vault resting on a central pillar. Ex. Lincoln (No. 117 F), Wells (No. 119 J), Westminster (No. 127 D). It was sometimes oblong, as at Canterbury (No. 118 B).

Chevet.—A term applied to a circular or polygonal termination of a church, known as the apse, surrounded by an aisle off which are chapels (No. 159 B). Such chapels sometimes open direct into the nave (No. 100 F).

Choir (see Chancel).

Choragus.—A term given in Greece to those who superintended a musical entertainment, and provided a chorus at their own expense.

Cinquefoil (No. 299 T).—A perforation of five points (see Quatrefoil).

Clepsydra (Gk. = a stealing away of water).—An instrument for measuring time by the discharge of water, a water clock.

Clerestory.—The upper division in the nave of a church above the triforium (Nos. 109 A, 127, 136 and 137). Probably derived from the French *clair* = light, which was obtained at this stage.

Cloisters.—Covered passages of communication, surrounding a square open space called the garth, and connecting the cathedral to the chapter-house, refectory, and other parts of the monastery to which they were attached (Nos. 114 A, B, D, 116 A, D, G, and 127 D). They were generally placed on the south of the nave, and west of the transept, as at Westminster (No. 127 D). The desire for sunlight and warmth probably suggested this position.

Coffers (*Lacunaria*).—Sunk panels formed in ceilings, vaults, or domes (Nos. 54 A, 55, 74, 76, 204, 218 G).

Column (Lat. *columna*).—A vertical support, generally consisting of a base, shaft, and capital (Nos. 38, 55, 77).

Composite.—An order employed by the Romans, having a capital composed of the upper part of the Ionic and the lower part of the Corinthian (No. 57 A, B).

Console (Nos. 44 K, L, 226 G, H) (see Bracket, Modillion, and Ancones).

Coping.—The capping (whence the name) or covering to a wall.

Corbels (Lat. *corbis* = a basket) are blocks of stone projecting from a wall, and supporting the beams of a roof or any weight; they are often elaborately carved and moulded (Nos. 103 B, G, J, 138, 174 J and 194 C).

Corbel Table.—A plain piece of projecting wall supported by a range of corbels and forming a parapet, generally crowned by a coping (Nos. 98 C, 103 B and 136).

Corinthian (*cf.* page 85).—The third order of Grecian architecture (No. 38 E).

Cornice (Fr. *corniche*).—In Greek architecture the crowning or upper portion of the entablature (Nos. 16 A and 40 A), used as the term for any crowning projection (Nos. 191, 192, 197 and 198).

Corona.—The square projection of the upper part of the cornice, having a broad vertical face generally plain, and with its soffit or under portion recessed so as to form a "drip," which (as its name implies) prevents water

from running down the building (No. 40 A, B, P, Q, R).

Cortile.—The Italian name adopted in English for the internal area, or courtyard, surrounded by an arcade in a palace, or other edifice (Nos. 191 E, G and 198 F).

Crocket (Fr. *croc* = a hook).—Projecting leaves or bunches of foliage used in Gothic architecture to decorate the angles of spires, canopies (No. 147 J, K, L), as in the spires of Ratisbon (No. 171).

Cross.—The symbol of Christianity, generally placed on the summits of gables and in other positions of prominence. It is often contained in a circle, and in the fourteenth and fifteenth centuries became richly floriated and of more complicated forms (No. 149 A, B, C).

Crypts (Gk. *cryptos* = hidden).—These are vaults, either entirely or partly beneath a building. In churches they generally occur beneath the chancel (Nos. 94 A, 199 B, 211 C, and 253 E). In early times they were used as places of burial.

Cupola (L. *cupa* = cup).—A spherical roof, rising like an inverted cup over a circular, square, or multangular building (Nos. 54, 80, 81, 83, 84, 85, 87, 176, 181, 199, 203, 212, 223, 253, and 254).

Cusps (Lat. *cuspis* = a point).—The trefoil, and quatrefoil, terminations of Gothic tracery (Nos. 142, 143).

Cyma (Gk. = wave or billow).—A moulding with an outline of two curves. For *cyma recta*, and *cyma reversa*, see pages 102, 106.

Cymatium.—The crowning member of a cornice, so called from its contour resembling that of a wave (No. 40 Q, R).

Dado.—The portion of a pedestal between its base and cornice. A term also applied to the lower portions of walls when decorated separately (Nos. 49 C, E and 57 A, H).

Da's.—A raised portion at the end of a mediæval or other hall, where the master dined apart from his retainers. The term is now often applied to any raised portion of an apartment (No. 132 F).

Decastyle.—A portico of ten columns (No. 53 A).

Decorated (*cf.* page 341).—The

second of the three divisions of English Gothic architecture, which was evolved during the fourteenth century.

Dentils (Lat. *dentes* = teeth).—Tooth-like ornaments occurring originally in the Ionic and Corinthian cornices (Nos. 38 and 191 A, B).

Diaper.—Any small pattern of flowers repeated continuously over the wall, as in the nave of Westminster Abbey (No. 127 c).

Diastyle (No. 39 v).—A term given when the space between two columns is three diameters.

Dipteral (Gk. = double-winged).—A temple having a double range of columns on each of its sides (No. 18 j).

Dog-tooth.—An ornament resembling its name, specially occurring in Early English work (No. 147 A).

Dome (It. *duomo* = cathedral, from Lat. *domus* = house).—The custom in Italy being to erect cupolas over churches, the word *dome* in English and French has passed from the building to this form of roof (see Cupola).

Doric (cf. page 59).—The first and simplest "order" of Grecian architecture (No. 38 A).

Dormer.—A window in a sloping roof. It was usually the window of the sleeping apartments, hence the name (Nos. 223 E, 225 K and 226 F).

Dripstone, label, or hood-mould, the termination of a projecting moulding in Gothic architecture placed over the heads of doorways, windows, and archways, generally for the purpose of throwing off the rain (Nos. 142 and 143).

Early English.—The first of the three divisions of Gothic architecture in England, which was evolved during the thirteenth century (cf. page 335).

Eaves.—The lower portion of a roof projecting beyond the face of the wall (Nos. 163 and 233).

Echinus.—Properly the egg-and-dart ornament originally used in the Ionic capital; often applied to the bold projecting ovolo of the Doric capital (Nos. 16 A, 19 and 40 D).

Entablature.—The portion of a structure supported by a colonnade, in Greek architecture comprising the architrave, frieze and cornice (Nos. 16 A and 38).

Entasis (cf. page 51).—A slight

swelling on the shaft of a column which prevents a hollow appearance.

Eustyle (No. 39 r).—A term given when the space between two columns is 2½ diameters.

Exedra (Gk. = out of a chair).—A recess occurring in a larger room (Nos. 65 B and 80 c). In Greek buildings, the disputations of the learned were held in such recesses, so called from containing a number of seats. The Romans applied the term to any semi-circular recess with benches, and to the rooms used as parlours (No. 60 K).

Façade.—The front view or elevation of a building (Nos. 85, 200 and 210 A, F).

Fan Vault.—A system of vaulting peculiar to English Perpendicular work, all the ribs having the same curve, resembling the frame-work of a fan (Nos. 112 R and 129).

Fascia (Lat. *facies* = a face).—A flat vertical face usually found in the entablature of an order (see page 77). The architrave of the Ionic and Corinthian orders is divided into two or more fascias (Nos. 38 and 262).

Fillet.—A small flat band which occurs chiefly between mouldings to separate them from each other, and as the uppermost member of a cornice (No. 39 A, B).

Finial (Lat. *finis* = the end).—The top or finishing portion of a pinnacle, bench end or other architectural feature (Nos. 141 C, F, H, 149 E, F, G, O, P, 232 B).

Flamboyant (Fr. *flambeau* = flame).—Tracery in which the stonework is made to flow upwards in long wavy divisions like flames of fire (Nos. 142 P, 175).

Flèche.—A term generally applied to a wooden spire surmounting a roof (Nos. 165 B and 232 C, E).

Fluting.—The vertical channelling on the shaft of a column (Nos. 38 and 40 K, L, M, O).

Flying-buttress.—A buttress springing by means of an arch over the aisle of a church, and counteracting the thrust of the nave vault (Nos. 100 B, 109 A, 141 E, F, G, H, 153 A and 157 B) (see Buttress).

Formeret.—The half ribs against the wall in a groined ceiling. The English term is "wall-rib."

Fresco.—The term applied originally to painting on a wall while the plastering is wet. Often used to mean any wall painting not in oil colors, but more properly called "tempera" or "encaustic" (No. 69 B).

Frieze (It. *fregio* = adorn).—The middle division of the entablature (Nos. 16 A, 38 and 198 B) (see Zoophoros).

Gable.—The triangular portion of a wall, marked by the enclosing line of the roof (Nos. 132 J, 232, 234 D, 244 A and 247). (In Classic architecture it is called the pediment (Nos. 16 A, 20 B, 21 A, 23, 28 C, O, 51, 56)).

Galilee.—A porch used as a chapel for penitents, built near the west end of abbey churches. The origin of the term is conjectural. Some derive it from the Latin *galeria*, a long porticus or porch. Galilees at Ely (No. 117 A), Lincoln (No. 117 F), and Durham (No. 118 E).

Gallery (Nos. 131 E and 243).—A passage common to rooms in an upper story or a long room to hold pictures.

Gargoyle.—A projecting waterspout in Gothic architecture to throw off the water from the roof, often grotesquely carved (No. 165 C, E).

Groin.—The angle formed by the intersection of vaults (Nos. 111, 112).

Guilloche (No. 39 P) (Gk. = snake-like).—An interlaced ornament like network, frequently used to enrich the "torus" moulding (page 106).

Guttæ (or Drops).—Small pyramids or cones occurring under the triglyphs and mutules of the Doric entablature (Nos. 16 G, H, 19, 21 H, L, K, and 23 G).

Hagioscope (or squint).—A term used for oblique openings found in mediæval church walls for the purpose of seeing the altar.

Half-timbered construction.—A structure formed of wooden posts, and the interstices filled with brick or plaster (Nos. 132 J, 150 and 247).

Hammer-beam roof.—A late Gothic form of roof without a direct tie, the finest example being Westminster Hall (No. 113 D, H) (page 293).

Hecatompædon (No. 23 H) (Gk. = a hundred-foot temple).—A temple of one hundred feet in length. A term applied to the Parthenon, whose cella was 100 Attic feet in length internally. By some applied to the width of the façade, the length along the upper

step of the Parthenon being 100 Attic feet = 101·241 English feet.

Hexastyle.—A row of six columns (No. 18 F).

Hieron (Gk. = a holy place).—The whole of the sacred inclosure attached to a temple, including the priests dwellings and the grounds.

Hood-Mold (see Dripstone).

Hypæthral (Gk. = under the air).

—A building or temple without a roof or possessing a central space open to the sky (Nos. 5 A, 20, 23, 25, 27).

Hypostyle.—A pillared hall (No. 5 A).

Hypotrachelium (Gk. = under the neck).—The channels or grooves beneath the trachelium at the junction of capital and shaft of a column (Nos. 19, 27 N, 38 A) (see Trachelium).

Impost (Lat. *impono* = I lay on).—The member usually formed of mouldings, on which the arch immediately rests (Nos. 72, 94 H, 107 J, N, 143).

Intercolumniation.—The space between the columns (No. 39 R, S, T, U, V).

Ionic (cf. page 77) (Nos. 29, 30 C, 31, 35, 38). The second order of Grecian architecture.

Jambs.—The sides of the openings of doors and windows (Nos. 94 J, K and 143 C, G, L, M). The portion outside the window frame is called the reveal.

Keel Moulding.—A moulding like the keel of a ship formed of a circle on which is a fillet; used in the fourteenth and fifteenth centuries (No. 146). Also applied to a similar form of arch (No. 299 V).

Keystone.—The central stone of an arch (Nos. 57 C, 67 B and 111 B, C, E).

King-post.—A post extending from the ridge, supporting the tie-beam in the centre (Nos. 252 D and 253 E).

Label (see Dripstone).

Lacunaria.—The sunk panels or coffers in ceilings (No. 21) (pages 67, 132).

Lancet arch.—A sharp pointed arch, resembling a lancet, chiefly in use during the Early English thirteenth century period (Nos. 142 F and 299 H).

Lych Gate.—A covered gateway, forming a resting-place for the coffin before entering the churchyard, and under which the first portion of the burial service is usually read.

Lierne.—A short intermediate rib in vaulting (No. 112 N, P).

Lintel.—The piece of timber or stone that covers an opening, and supports a weight above it (Nos. 6, 8, 20, and 37).

Loggia.—A gallery open to the air, and forming a shelter.

Metope (Gk. = a hole between).—The space between the Doric triglyphs. In ancient examples it was left quite open, hence the name (Nos. 16 A, 20 B, 21, and 44 H).

Mezzanine.—A low story between two lofty ones (Fr. Entresol).

Miserere.—A seat, made to turn up in order to afford support to a standing person. The underside is frequently grotesquely carved (No. 174 G, H).

Modillions.—The projecting brackets in the Corinthian cornice (Nos. 38 F, 68 A, D, 191 A, B, 198 B).

Module.—A measure of proportion, by which the parts of a Classic order or building are regulated, being usually the semi-diameter of a column, which is divided into thirty parts or minutes (Nos. 38 and 262).

Mosaic.—The formation of decorative surfaces by small cubes of stone, glass and marble; much used in Roman and later times for floors and wall decoration (Nos. 69 K, 72, and 78 B, H, I).

Mouldings.—The contours given to projecting members (see F. Mouldings in each style, Nos. 39, 40 and 146).

Mullions.—Used in Gothic architecture, to divide the windows into different numbers of lights, these being usually glazed in leaded panes (Nos. 142 and 175).

Mutule.—The projecting inclined blocks in the Greek Doric cornice, supposed to be derived from the ends of wooden rafters (Nos. 21 H, K, I, 38 A, and 262 A).

Narthex.—A long arched Porch forming an entrance into a Christian basilica, originally appropriated to penitents (Nos. 75 E and 80 C).

Naos.—The cell or principal chamber in a temple (No. 18 H). The English *nave* is derived from the Gk. *naos*, and signifies the central or main division of the plan (Nos. 130 C and 159 A, B).

Naumachia (Gk. = a battle of ships).—A building erected for the exhibition of sea-fights, sometimes refers to the spectacle itself.

Nave (see Naos).—The central division of a church, west of the choir.

Necking.—The space between the astragal of the shaft and the commencement of the cap proper in the Roman Doric (Nos. 38 and 40 N).

Newel.—(1) The central shaft, round which the steps of a circular staircase wind; (2) also applied to the post in which the handrail is framed (Nos. 242, 244 E and 250 C).

Niche.—A recess in a wall for the reception of a statue or ornament (Nos. 128 and 194).

Norman.—The style which preceded the Early English in this country, also termed English Romanesque (Nos. 122 A, B, C, D, 135, 136 A, B, 138, 139).

Nymphaeum.—(Literally, a building consecrated to the nymphs). A chamber for plants, flowers, and running water, ornamented with statues and forming a cool and agreeable retreat (see page 132).

Octastyle.—A range of eight columns (Nos. 18, 23).

Ogee (cyma-reversa).—A form of moulding (No. 39 M) or arch (No. 299 V).

Opisthodomos (No. 18 H, 23 H) (also called Epinaos or posticum) (Gk. = a backroom, or behind a house).—In Greek architecture an open vestibule within the portico, at the end behind the cella in most peripteral or dipteral temples, corresponding to the pronaos at the principal end, into which opens the main entrance.

Order (page 53).—In architecture, signifies a column, with its base, shaft and capital, and the entablature which it supports (Nos. 38 and 262).

Oriel.—A window corbelled from the face of wall by means of projecting stones (No. 250 E).

Ovolo.—A convex moulding which was much used in Classic architecture (No. 39 N, O).

Panel.—A sunken compartment such as occurs in walls, ceilings, doors and wainscoting (Nos. 214 G, 225 C, E, 244 D).

Parapet (Ital. *parapetto* = breast high).—The upper portion of the

wall above the roof; it is sometimes battlemented, a method derived from purposes of defence (Nos. 134 A, 147 M, N, O, 157 A, B and 165 C, D).

Patera.—Flat ornaments in all styles of architecture are called *pateræ*, the term being derived from the circular ornaments resembling the Classical dishes used for holding wine in the sacrificial libations.

Pavimentum.—A pavement formed by means of pieces of tile, marble, stone, flints or other material set in cement and consolidated by beating down with a rammer (*pavicula*), whence its name.

Pediment.—In Classic architecture the triangular termination of the roof of a temple (Nos. 16 A, 20 A, B, 21 A, 23 and 28 C, O). In Gothic architecture called the Gable.

Pendentive.—The triangular curved surface by means of which a circular or octagonal dome is supported on a square compartment (Nos. 79, 82 I, K, 86 and 111 C).

Peripteral.—An edifice surrounded by a range of columns (No. 18 H).

Peristyle.—A range of columns surrounding a court or temple (No. 18).

Perpendicular (*cf.* page 349).—A phase of English Gothic evolved from the Decorated style, and in use during the fifteenth and sixteenth centuries in England, so called from the lines of tracery in use (Nos. 137 G, 142 N, O).

Pier.—A supporting mass other than a column between windows, doors, and other openings; a support on which the arch of a bridge rests. The term is sometimes given to a pillar in Gothic Architecture (Nos. 214 G, 225 C, E, 244 D).

Pilaster.—An anta or square pillar, projecting about one-sixth of its breadth from the wall, and of the same proportion as the order with which it is used (Nos. 37 B, 38 F, 67 F, 194 G, J, and 195).

Pinnacle.—A small turret-like termination, placed on the top of buttresses or elsewhere, often ornamented upon its angles by bunches of foliage called crockets (Nos. 109 A, 127, 128, 141 F, H, 153 and 232 A).

Piscina (Lat. = a reservoir of water) is a small niche near the altar, with a hole in the bottom to carry off the water in which the priest washed his

hands, and also that in which the chalice was rinsed (No. 144 E, F, G, H). The term is also applied to the swimming pond in Roman baths.

Pitch of Roof.—The inclination of its surface to the horizon.

Plan.—The representation of a building showing the general distribution of its parts in horizontal section (Nos. 18, 117, 118, 119, 120, 155).

Plinth.—The lower square member of the base of a column also applied to the projecting base of any building (Nos. 38 and 262).

Podium.—A low pedestal wall; also the inclosing wall of the arena of an amphitheatre (Nos. 51, 62, 64).

Portico.—The space inclosed within columns and forming a covered ambulatory (Nos. 20 B, 22, 51, 54, 56).

Presbytery (No. 159 D).—A word applied vaguely to the choir, the sacristy, and the space between the high altar and the lady chapel (also called the Retro-choir).

Priory.—A monastic establishment presided over by a Prior, who was a subordinate to the Abbot.

Pronaos (Nos. 18, 23 E, H).—The part of the temple in front of the naos (often synonymous with Portico).

Propylæum (Gk. = a portal in front of).—An entrance gate or vestibule, in front of a building or set of buildings. Examples at Athens (Nos. 17, 26), Priene, Sunium and Eleusis.

Prostyle (Gk. = a column in front).—An open portico, standing in front of the building to which it belongs (No. 18).

Pseudo-dipteral (Gk. = false double-winged), a temple which is apparently two columns in depth, but from which the inner range of columns is omitted (No. 18 L).

Pteroma.—A term applied to the lateral walls of the cella of a temple and thence to the spaces between the walls and the columns of the peristyles.

Pulvinated (Lat. = a pillow).—A frieze, whose face is convex in profile, is said to be pulvinated (No. 37 C, 215, upper frieze).

Pycnostyle (No. 39 R).—A term given when the space between two columns is $1\frac{1}{2}$ diameter.

Quadriga.—A four-horsed chariot often surmounting a monument.

Quatrefoil (Fr. *quatre-feuilles*) = four

leaves).—In tracery a circular panel divided into four leaves (No. 142 K, L).

Quoin.—A term generally applied to the corner stones at the angles of buildings, and hence to the angle itself (Nos. 197 and 198 D).

Refectory.—The dining hall in a monastery, convent or college.

Renaissance (Fr. rebirth).—The re-introduction of Classic forms in architecture, all over Europe, in the fifteenth and sixteenth centuries. (For the causes which led up to this movement, see page 437.)

Reredos.—The screen, or ornamental work, at the back of the altar. In Manchester, S. Albans, and Durham Cathedrals they are carved structures reaching to the roof.

Rib.—A projecting band on a ceiling, on various kinds of vaults, and elsewhere (Nos. 109, 111, 112 (cf. pages 283, 290).

Ridge.—The highest point of a roof, running from end to end.

Rococo style.—A debased application of Renaissance features (see page 496).

Roll moulding (No. 146).—Also called scroll moulding from its resemblance to a scroll of paper, one edge of which projects over the other part.

Rood loft.—A raised gallery in front of the Chancel arch, to carry a crucifix or rood, used for reading portions of the church service. The framing under, known as the *rood screen*, separates the chancel from the rest of the church (No. 145 E).

Rose-window, see wheel-window (Nos. 153 B, 156 and 161).

Rostrum (Gk. = prow of a ship).—The plural "rostra" denoted the tribune in the Forum Romanum, from which orators addressed the people. It was so called because decorated with the prows of ships taken in war.

Rustication.—A method of forming stonework with recessed joints, principally employed in Renaissance buildings as at Florence (No. 192).

Screen.—A partition or inclosure of wood, often elaborately carved, and separating the choir from the nave. The Latin *cancellus* = screen, corrupted to "chancel," primarily used for the inclosing object, was afterwards

applied to that which it inclosed (Nos. 86 and 123).

Scotia (Gk. *scotia* = archaic).—The concave moulding in the base of a column, throwing a deep shadow (Nos. 39 G, H, 40 H, I, U).

Section.—A term used by architects to express the representation of a building, divided into two parts by a vertical plane, so as to show the construction. The term is also applied to any section the same way (Nos. 62 B, 73 D, 240, 203 F, G).

Sedilia (Lat. = seat). The seats for the priests, generally of mosaic, placed in the wall on the south side of the chancel (No. 144 M, N, O).

Shaft.—The portion of the column between the base and capital (Nos. 16 A, B and 138).

Soffit.—The ceiling; the under side of any architectural member (No. 108 A).

Solar.—A medieval term for an upper chamber, usually the private chamber of the owner.

Span.—The width or opening of an arch, roof, or beam, between its supports.

Spandrel.—The triangular space between the curve of an arch and the square inclosing it (Nos. 127 A, 143 I and 148 M, N).

Spire.—The pointed termination to the tower of a church in Gothic or Renaissance architecture; usually octagonal on plan; in Renaissance architecture, carried up in stones (Nos. 121, 130, 140 and 255).

Squinch arch.—Arches placed diagonally at the angles in the inclosures of towers to bring them from the square to the octagon, and so support the octagonal spire (No. 188).

Stalls.—Divisions or fixed seats for the clergy and choir, often elaborately carved (No. 126). They have large projecting elbows and carved "misericordes," and are often surmounted by overhanging canopies. The bishop's seat is called the "throne." The student should visit Henry VII.'s Chapel at Westminster, and the Abbey Choir.

Steeple.—The term applied to the tower of a church, including the spire (Nos. 130 and 255).

Stilted arch.—An arch having its springing line above the line of impost mouldings, to which it is connected

with vertical pieces of walling or stilts (No. 112 B, G).

Stoa.—In Grecian architecture, a portico; a term corresponding with the Latin *porticus* and the Italian *portico* (No. 17).

Story.—The space between two adjacent floors.

Stylobate.—The base or sub-structure on which a colonnade is placed (No. 16 A).

Systyle (No. 39 s).—A term given when the space between two columns is two diameters.

Temenos.—The sacred precinct in which stood a temple or other sanctuary.

Tenia.—The band or fillet forming the upper member of the Doric architrave (No. 16 A).

Terra-cotta.—Earth baked or burnt and formed into moulds, and used ornamentally. A fine example, used constructionally, is Sutton Place, near Guildford.

Tetrastyle.—A portico of four columns (No. 18 D, E).

Tholos.—The dome (cupola) of a circular building, hence applied to the building itself (see Tholos at Epidaurus) (No. 18 K).

Torus.—A large convex moulding, used principally in the bases of columns (No. 39 F, Q) (see Astragal).

Trabeated (Lat. *trabs* = a beam).—A style of architecture such as the Greek, in which the beam forms the constructive type (Nos. 16, 20, 21, 23).

Tracery.—The ornamental pattern work in stone, filling the upper part of a Gothic window; it may be either "plate" or "bar" tracery. The character of "plate" tracery is such that it appears to have been cut out of a slab or plate of stone with special reference to the shape of the lights, whereas "bar" tracery was designed principally for the pleasing forms produced by combinations of various geometrical figures. It is also applied to work of the same character in wood panelling (Nos. 142, 147 N, O, and 153 B).

Trachelium.—The necking of a Greek Doric column between the annulets and the grooves or hypotrachelium.

Transept.—The part of a church, projecting at right angles to the main building (Nos. 130 C and 159 A).

Transoms.—The horizontal divisions or cross-bars to windows (Nos. 142 N, O, 225 K and 229 A).

Trefoil (*trois-feuilles* = three leaves).—A term applied to this distribution in Gothic tracery (Nos. 142 B, C, E and 299 Q, R, S).

Triforium.—The space formed between the sloping roof over the aisle and the aisle vaulting. It occurs in large churches only, and, from having no windows to the open air, is often called a blind story (Nos. 109 A, 122 D, G and 127 C).

Triglyphs (Gk. three = channels).—These occur in the frieze of the Doric entablature (Nos. 16 A and 38 A, B).

Turrets are small towers, often containing staircases (No. 133).

Tympanum.—The triangular space within the raking and horizontal cornices of a pediment (see frontispiece and No. 16 A).

Vault.—An arched covering in stone or brick over any space (Nos. 46, 62 B, 79, 111, and 112).

Vestibule.—An ante-room to a larger apartment, or to a house.

Volute (Lat. *voluta* = a scroll).—The scroll or spiral occurring in the Ionic and Corinthian capitals (Nos. 29 C, 38 D, E, F, 40 F. and 41).

Voussoir.—The wedge-shaped blocks forming an arch (No. 111).

Weathering.—The slope given to the upper surface of cornices and mouldings, to throw off the rain.

Wheel-window.—A circular window, whose mullions converge like the spokes of a wheel, hence the name (Nos. 153 B and 161).

Zoophoros.—A frieze in which reliefs of animals are introduced, as in the Panathenaic frieze on the cella wall of the Parthenon (No. 23 F) (see Frieze).

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